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JANUARY, 1880.

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FROM the fact that beef tea contains only that portion of the meat dissolved by water, we were led to undertake a series of experiments to prove the possibility of obtaining the whole of the beef in a soluble form; that is, in a condition similar to that produced by partial digestion, and by which the stomach could be saved the heavier portion of the work of the natural process. Since beef tea made from fresh meat or from extract of meat has a very low nutritive value—however valuable it may be as an adjunct to easily digested food—it follows that any preparation containing the whole of the beef and not merely the small portion of it, which in its ordinary state is soluble in water, must be looked upon as an exceedingly valuable article of diet for all whose digestive powers have been weakened by disease or other predisposing cause.

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Mineral matter retained by the meat after boiling, chiefly phosphates.	Absent.	Mineral matter retained by the meat after boiling, chiefly phosphates.
Mineral matter soluble in water.	Mineral matter soluble in water.	Mineral matter soluble in water.

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Lænnic's Specific (Solution of Copaibæ). (Harris & Co.)
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Subscribed Capital,
£750,000.

Paid-up & Invested,
£182,790.

Assurance & Annuity Fund,
£873,700.

Total Invested Assets, (1877)
£1,072,400.

1820.

Annual Income, **£130,000.**

SHORT PROSPECTUS.

The Imperial Life Insurance Company was established in the year 1820, under the auspices of The Imperial Fire Insurance Company, which had then been in successful operation for a period of 17 years. It was constituted on the mixed mutual and proprietary principle, whereby the assured are absolutely guaranteed against all liabilities whatsoever, receiving at the same time four-fifths of the entire profit of the business. *The remaining one-fifth is all that the Proprietors receive in exchange for the security afforded by their Capital,* and even this payment will be seen to be to a great extent, if not entirely, covered, when it is borne in mind that the Company does not issue Profit Policies only, but that about one-fourth part of the existing business is of the non-participating kind, *and contributes to the general surplus in which the participating Policy-holders share. The "Imperial," therefore, claims to furnish the highest order of security at the minimum of cost to the Assured.*

RESULTS OF THE LAST INVESTIGATION

At the investigation in 1876 it was ascertained that whilst the Assurance and Annuity Fund was £865,714, the calculated value of all the liabilities of the Company amounted to £753,413, leaving a surplus of £112,301 to be dealt with. Of this sum £78,945 was divided and the proportion of four-fifths belonging to the participating Policy-Holders enabled the Directors to declare a Reversionary Bonus for the quinquennium, of £1. 5s. per cent. per annum on sums assured and previous bonuses, *a rate varying between £2 3s. 8d. and £1 5s. per cent. per annum on the sums assured* *according to the duration of the Policies.* **The balance of £33,356 was carried to the Assurance Fund as a further guarantee against possible unfavourable fluctuations of mortality.**

The valuation was made on the most sound and rigorous principles, the Table used for valuing the great bulk of the business being that known as the "Seventeen Offices' Experience." The capitalised value of that part of the annual premium technically called the loading or margin amounted to £217,000, and, in arriving at the value of the liabilities above indicated, this sum was set apart and specially reserved to provide for future profits and expenses.

The periodical valuations of the Company's Liabilities and Assets take place *once in five years*, and the current period terminates on the 31st of January, 1881. **All insurers with profits before the 31st of January in any year will secure an additional year's share of the Bonus over later entrants.**

GUARANTEED SURRENDER VALUES.

The value of a Policy is a matter of strict calculation, and no invariable rule for arriving at it in particular cases can be laid down; **but the Directors have for many years guaranteed** *as a minimum value* **a return of 40 per cent. of the ordinary premiums paid on participating Policies effected for the whole term of single life, when the bonus has not been surrendered, and a similar return of 35 per cent. in the case of non-participating Policies.** The Policy-holder can thus reckon for himself the minimum amount that he can withdraw at any time, either by the surrender of his Policy *or by way of loan on its security.* The only limitation to this guarantee is that if the Policy be for less than £300 three annual premiums shall have been paid on it

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It often happens that a Policy-holder simply wishes to be relieved of the burden of future payments without desiring to cancel the Assurance altogether. In such cases the Company has always been ready to grant a Paid up Policy for an amount corresponding to the surrender value. The amount varies according to the number of premiums paid, the age of the Assured, and the table originally adopted so that a reference to the office is necessary.

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Persons whose lives are assured, unless in the employment of the Naval and Mercantile Marine, are at liberty to reside and travel, in *times of peace*, anywhere within the limits of Europe, in the British North American Colonies, Southern Australia, New Zealand, the Cape Colony, and all parts of the world distant from the Equator 35 degrees and upwards, North or South, without payment of any extra premium.

Sea voyages from any part of Europe to Cape Colony or to North America, north of 35 degrees N. latitude are also allowed, in times of peace, free of extra charge.

REVIVAL OF LAPSED POLICIES.

Thirty days of grace are allowed for renewal, during which the Policy continues in as full force as if the premium had been paid; twelve months longer are allowed for revival on payment of the overdue premium with a fine, but during the latter half of this extended time a Medical Certificate must be given that the Life Assured is in good health.

SCOPE OF THE BUSINESS.

Every facility is afforded to Assurers for the transaction of business.

The annual rates of premium for assurances for the whole term of life are given on the next page; but premiums may be paid either half-yearly or quarterly, at a slightly increased percentage, and either in one sum or in a limited number of payments. *The premium may also be reduced to about half the usual amount for the first five years without any debt being thereby incurred.*

Assurances for other than the whole term of single life may likewise be effected. For instance, a person may secure a sum to be payable to himself, if he reach a certain specified age, or to his heirs if he should die before attaining that age. This is called an Endowment Assurance. Or, partners may provide for the sum to be drawn out of a business on the death of one of them by effecting a Joint Life Assurance.

Policies may also be effected to secure a sum payable on the last survivor of two or more lives; or on the death of one life (A), provided another life (B) survive. By an assurance of the first kind, the fine for renewal of a lease held on lives may be provided for at a small annual outlay; and by an assurance of the second kind, Reversions which are contingent only, may be secured in any event.

The premiums have been computed with great care and due regard to equitable charges for all ages and all classes of assured, and they will be found to compare favourably with those charged by other offices.

CLAIMS become due three months after satisfactory proof of death has been furnished, and they will be paid under discount at an earlier date if desired, when the claimant's legal title is clear.

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ANDREW BADEN,

Actuary and Manager.

ANNUAL RATES

For the Assurance of £100 for the whole term of life.

WITH PROFITS.

Age next Birth-day.	Yearly. £	s.	d.	Age next Birth-day.	Yearly. £	s.	d.
15	1	17	4	38	3	1	4
16	1	18	0	39	3	3	1
17	1	[illegible]	8	40	[illegible]	4	11
18	1	19	4	41	3	6	10
19	2	0	1	42	3	8	11
20	[illegible]	0	10	43	3	11	1
21	[illegible]	1	7	44	3	13	5
22	[illegible]	2	5	45	[illegible]	15	10
23	[illegible]	3	3	46	3	18	5
24	2	4	1	47	4	1	1
25	2	5	[illegible]	48	4	[illegible]	11
26	[illegible]	6	0	49	4	6	11
27	[illegible]	7	0	50	4	10	2
28	[illegible]	8	0	51	4	13	6
29	2	9	1	52	4	17	0
30	[illegible]	10	3	53	5	0	9
31	[illegible]	11	5	54	5	4	8
32	[illegible]	[illegible]	7	55	5	8	11
33	[illegible]	13	10	56	5	13	4
34	[illegible]	15	[illegible]	57	5	18	1
35	[illegible]	16	8	58	6	3	1
36	[illegible]	[illegible]	[illegible]	59	6	8	5
37	[illegible]	19	[illegible]	60	6	14	1

The guaranteed Surrender Value of 40 per cent. applies to this Table.
(See page 2.)

HEAD OFFICE,

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J. DELPRATT, Superintendent.

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Actuary & Manager.

ANNUAL RATES

For the Assurance of £100 for the whole term of life.

WITHOUT PROFITS.

Age next Birth-day.	Yearly. £	s.	d.	Age next Birth-day.	Yearly. £	s.	d.
15	1	[illegible]	[illegible]	38	[illegible]	11	10
16	1	11	[illegible]	39	[illegible]	15	5
17	1	11	[illegible]	40	[illegible]	17	1
18	1	12	1	41	[illegible]	18	10
19	1	[illegible]	[illegible]	42	[illegible]	0	8
20	1	[illegible]	[illegible]	43	[illegible]	2	6
21	1	14	1	44	[illegible]	4	5
22	1	[illegible]	[illegible]	45	[illegible]	6	5
23	1	16	[illegible]	46	[illegible]	8	6
24	1	17	1	47	[illegible]	10	9
25	1	18	1	48	[illegible]	13	3
26	1	19	1	49	[illegible]	16	1
27	[illegible]	[illegible]	[illegible]	50	[illegible]	19	4
28	[illegible]	1	[illegible]	51	4	2	10
29	[illegible]	[illegible]	1	52	4	6	[illegible]
30	[illegible]	[illegible]	[illegible]	53	4	[illegible]	4
31	[illegible]	4	6	54	4	14	4
32	[illegible]	[illegible]	[illegible]	55	4	18	6
33	[illegible]	[illegible]	[illegible]	56	[illegible]	[illegible]	[illegible]
34	[illegible]	8	1	57	5	7	[illegible]
35	[illegible]	[illegible]	[illegible]	58	5	[illegible]	[illegible]
36	[illegible]	[illegible]	[illegible]	59	[illegible]	17	4
37	[illegible]	[illegible]	4	60	[illegible]	[illegible]	[illegible]

The guaranteed Surrender Value of 35 per cent. applies to this Table.
(See page 2.)

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All Communications to be addressed to the Editor, Dr. SAUNDBY, Newhall Street, Birmingham.

SCOTTISH PROVIDENT INSTITUTION.

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FUNDS	£3,500,000
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Instead of charging rates higher than are necessary, and afterwards returning the excess in the shape of periodical Bonuses, it gives from the first as large an Assurance as the Premiums will with safety bear, reserving the Whole Surplus for those Members who have lived long enough to secure the Common Funds from loss.

The Premiums usually charged for £1,000 (with Profits) will here assure in many cases £1,200 to £1,250 from the first, being equivalent to an *immediate* and *certain* "Bonus" of 20 to 25 per cent.

The whole Surplus belongs to the Members; and being *reserved* for the good lives, large Bonuses *in addition* have been, and may be expected to be, given.

The NEW BUSINESS *has for several years exceeded* ONE MILLION *per annum.*

ANNUAL PREMIUMS FOR £100 AT DEATH (WITH PROFITS).

AGE.	30	35	40	45
DURING LIFE	£2 1 6	£2 6 10	£2 14 9	£3 5 9
TWENTY-ONE PAYMENTS	2 15 4	3 0 2	3 7 5	3 17 6

The Premiums in the former column are about the same as the usual non-participating rates of other Offices.

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THE

BIRMINGHAM MEDICAL REVIEW,

JANUARY, 1880.

REVIEWS.

THE RELATIONS OF CARDIAC HYPERTROPHY TO RENAL DISEASE.

THE coincidence of cardiac hypertrophy with renal disease, more especially with granular degeneration of the kidneys, is so frequent, and so often wanting in any local mechanical explanation, that it has always attracted considerable attention, and, although the discussion has not yet arrived at a very definite settlement of the question, it has been the cause of a thorough examination of the entire pathological relations of Bright's disease, which has produced results of the highest practical importance.

The frequency of this coincidence seems to be in about one-half of the cases. It cannot be admitted that its absence is due to the renal disease being not far enough advanced. Doubtless the coincidence would be very much more complete were all the cases of hypertrophy included in the statistics, but those explicable by valvular or vascular disease have been excluded. Some authorities give a much larger proportion than one-half, and, perhaps, it is difficult to determine who is right; but this we do know, that the heart is not always hypertrophied even when the kidneys are very contracted. In the other forms of Bright's disease, hypertrophy, though common, is certainly less frequent.

Bright,* in recording the various organic changes in 100 cases of renal disease, says, "The obvious structural changes in the heart have consisted chiefly of hypertrophy, with or without valvular disease; and what is most striking, out of fifty-two cases of hypertrophy, no valvular disease whatsoever could be detected in thirty-four; but in eleven of these thirty-four, more or less disease existed in the coats of the aorta; still, however, leaving twenty-two without any probable organic cause for the marked hypertrophy generally affecting the left ventricle. This naturally leads us to look for some less local cause for the unusual efforts to which the heart has been impelled; and the two most ready solutions appear to be, either that the altered quality of the blood affords irregular and unwonted stimulus to the organ immediately, or, that it so affects the minute and capillary circulation as to render greater action necessary to force the blood through the distant sub-divisions of the vascular system." In the next paragraph, he says, "It is observable that the hypertrophy of the heart seems, in some degree, to have kept pace with the advance of disease in the kidneys; for in the majority of cases where the muscular power of the heart was increased, the hardness and contraction of the kidney bespoke the probability of a long continuance of the disease."

In this table Bright had included not only granular kidney, but all forms of renal disease with albuminuria. It will be found that the pendulum of modern opinion is now again oscillating between these two explanations in spite of forty years of discussion and observation with the aid which the modern use of the microscope has lent to pathological researches. Thus Prof. Senator,* of Berlin, in a recent communication suggests that in chronic parenchymatous nephritis the heart is excentrically hypertrophied, and that this is probably attributable to the increased capillary resistance while, in interstitial nephritis, the hypertrophy is concentric, and is due to direct irritation of the heart, either from some nervous disorder, as in Basedow's disease, or, as is more likely, from the blood dyscrasia.

---

* Cases of Renal Disease accompanied with Albuminous Urine. Guy's Hospital Reports, vol. i., p. 397.

Since the time of Bright there have been four original explanations brought forward and all other writers on the subject have adopted some one, or a combination, of these various theories.

Traube, to whom we owe the observation of the hard pulse of Bright's disease, regarded the destruction of a large capillary area in the kidneys as necessarily causing so much obstruction to the circulation that, aided by the imperfect elimination of water, the blood pressure in the aortic system must rise and cardiac hypertrophy follow. Bamberger objected to this that the hypertrophy begins in the earlier stages of Bright's disease; moreover it is present in chronic parenchymatous nephritis in which no destruction of capillaries has occurred. Ludwig and his pupils have shown that ligature of both renal arteries, or of even larger arteries, does not raise the blood pressure in the aorta, while it is well known that in granular kidney the elimination of water is rather in excess of the normal yet it is specially in this affection that cardiac hypertrophy occurs. It is, therefore, not without reason that this hypothesis has been generally abandoned, although in recent times it received the support of so eminent an authority as Bartels.

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* Beitrage zur Pathologie der Nieren und des Harns. Ueber die Beziehungen der Herzhypertrophie zu Nierenleiden. Virchow's Archiv. Bd. 4. lxxiii. Heft 3, p. 313.

The next original explanation was that given by Dr. George Johnson, which has undergone at least two modifications. In the first place Dr. Johnson pointed out the excessive thickening of the muscular walls of the renal arterioles, and suggested that the obstruction to the circulation offered by a state of tonic spasm in these vessels, would explain their own alterations, the rise of blood pressure and the cardiac hypertrophy. But having been able to discover similar changes in the vessels of the pia mater and mesentery, he enlarged his hypothesis and imagined a state of tonic spasm of the whole systemic arterioles which he attributed at first to direct irritation by the impure blood, and later on to stimulation of the vaso-motor centre. According to his present views he regards the condition as analogous to asphyxia, in which unoxygenated blood going to the brain stimulates the vaso-motor centre in the medulla, and causes contraction of the arterioles throughout the body with consequent increase of the arterial blood pressure. The great objection to this theory of general constriction of the vascular system is that, under such circumstances, the urinary secretion would be diminished or suppressed, as indeed occurs in asphyxia ; whereas, in granular kidney, as is well known, the rise in blood pressure is accompanied by an increase in the flow of urine. Moreover, Grutzner (Pflüger's Archiv Bd. xi., s. 370) has shown that the diuresis excited by the intravascular injection of salts such as nitrate of potash is arrested during suspension of the respiration, unless the nerves to the kidney are divided. This failure in the analogy has always appeared to us a very weak point in the theory, but recently further light has been thrown on the question. MM. Dastre and Moret[*] have communicated to the Société de Biologie the results of their investigations into the state of the circulation in asphyxia. They have determined that the vessels of the skin in an asphyxiated animal are dilated to five or ten times their normal diameters, but that the vessels of the intestines and viscera are at the same time contracted, this antagonism holding good in the reverse condition, when the skin vessels are contracted those of the internal organs are dilated.

As the depression of the cutaneous circulation and functions are as prominent features of granular kidney as the increase in the renal secretion, it seems probable that if any vaso-motor action does occur it must be contraction of the vessels of the skin and dilatation of the vessels of the internal organs. Under such circumstances this vaso-motor action may play some part in the rise of blood pressure.

The third original explanation is that which we owe to Sir William Gull and Dr. Sutton.[†] They rediscovered the vascular changes described by Dr. Johnson, but drew attention more especially to the thickening of the fibroid tissues. They regard these vascular changes as primary and essential, the increased blood pressure and cardiac hypertrophy being their consequences while the kidney disease is but a local expression of a general degeneration of the arterioles and capillaries attended by atrophy of the adjacent tissues. Although we may admit that when established these vascular changes do obstruct the circulation, and thus might be determining causes of cardiac hypertrophy, according to Thoma[‡] the fibroid thickening occurs in *dilated* vessels so that the normal calibre is only exceptionally reduced. But in addition we have the fact that in a considerable proportion of cases of granular kidney cardiac hypertrophy is found unaccompanied by the vascular changes. According to Ewald[*] this occurred in 4 out of 20 cases, and we have been able to confirm the statement in about the same proportion of cases (2 out 10). Finally in chronic parenchymatous nephritis the occurrence of cardiac hypertrophy is not infrequent, but the vascular changes are quite exceptional. Therefore, although there is much in the view taken of Bright's disease by these authors with which we cordially agree, we must regard their explanation of the cardiac hypertrophy as failing to square with all the facts of the case.

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[*] Influence du Sang Asphyxique sur la Circulation. Société de Biologie. Séance du 8 Novembre. Le Progrès Médical, Nov. 15th

[†] Medico-Chir. Trans. Second Series. Vol. xxxvii., p. 273.

[‡] Zur Kentniss der Circulationsstörung in der Nieren bei chronischer interstitieller Nephritis. Virchow's Archiv Bd. lxxi. Heft 1 & 2.

The latest explanation we owe to v. Buhl.[†] He believes the cardiac and renal changes proceed *pari passu*, the hypertrophy is to be attributed to the self-increased activity (Selbsteigene Thatigkeit) of the heart. Myocarditis occurs very early, which may cause no alteration, or atrophy or hypertrophy of the organ. Most frequently it causes hypertrophy. As the inflammatory process comes to an end the cardiac muscle hypertrophies from excess of nutrition, and to overcome the increased work of the dilated ventricle. In addition he regards the fact as 'quite new,' that a relative stenosis of the aorta is present. The rise of blood pressure in the aortic system is due to the hypertrophy of the ventricle and the narrowing of the aorta.

The relative frequency of myocarditis in renal disease is an undoubted fact, and this process plays an important part in many cases, but there is no warrant in the assumption that it has occurred in all cases. Buhl is not at all clear as to the cause upon which the self increased activity of the heart or the myocarditis depends. He cannot claim novelty for the fact that the aorta is in some cases relatively stenosed as Bamberger* adduced it as opposed to Traube's hypothesis. With regard to its frequency in granular kidney Ewald has measured the circumference of the aorta above the valves in 12 cases, and found it to vary between 12.1 and 5.7 cm., the average being 7.6 cm., while the normal circumference according to Bouillaud is 6.3 cm., so that we cannot attach very much importance to it as a cause of cardiac hypertrophy.

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[*] Ueber die Verauderungen kleiner Gefasse bei Morbus Brightii und die darauf Bezuglichlen Theorien. Virchow's Archiv Bd. lxxi. Heft 4.

[†] Ueber Bright's Granularschwund der Nieren und die damit zusammenhangende Herzhypertrophie. Mittheilungen aus dem pathol. Institut zu Munchen, 1878. S. 38.

Having failed to find any of these explanations quite satisfactory we return to Bright's suggestions, that either the altered quality of the blood affords irregular and unwonted stimulus to the heart immediately; or that it so affects the capillary circulation as to render greater action necessary to force the blood through the distant subdivisions of the vascular system. Both these explanations rest upon the supposed impure state of the blood. In the acute and chronic stages of parenchymatous nephritis the condition of the blood was investigated many years ago by Bostock, Gregory, and Christison.† According to the latter, urea was always found in considerable quantity in the blood whenever the excretion of urine was diminished, the density of the blood serum was always less, and the fibrine was frequently increased. Nothing of importance has been added to this observation in modern times; but experiments with animals have shown that urea, extractive matters of the blood, creatine and leucin, accumulate in large quantities in the blood and tissues after nephrotomy; and it does not require much argument to convince anyone that during the abeyance of the renal function the blood depurating process must be more or less incomplete.

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* Quoted by Niemeyer. Text Book of Practical Medicine. Vol. I., p. 300.

† Granular Degeneration of the Kidney. 1839. P. 58 et seq.

But in granular kidney, as we understand it, the density of the serum is normal, or increased, according to Christison; the proportion of salts and albumen may be very high, and the fibrine is normal; the most striking characteristic being a rapid reduction of the blood pigment or hæmatin. Bartels has published some observations, but none of them bearing on the state of the blood in the earlier stages; in the latter stages, when dropsy was present, the density of the blood serum was low; a certain amount of urea was found in many cases, in others it was absent.

But there are other reasons for believing that blood impurities are early and important phenomena in granular kidney. Dr. Todd first pointed out the frequent co-existence of this form of renal disease with gout, hence the name Gouty Kidney; Ollivier has drawn attention to its frequent occurrence among workers in lead. Dr. Johnson states that the disease is common in persons who "eat and drink to excess, or who, not being intemperate in food or drink suffer from certain forms of dyspepsia, without the complication of gouty paroxysms." He says, that "renal degeneration is probably a consequence of the long-continued elimination of products of faulty digestion through the kidneys." The late Dr. Murchison was persuaded of the relation borne by contracted kidney to persistent lithæmia. Prof. Semmola,* of Naples, maintains the view that Bright's disease is a consequence of the blood dyscrasia resulting from suppression of the respiratory function of the skin. Our own observations indicate the probability that prolonged and habitual dyspepsia is in many cases a precursor of this disease.

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* Brit. Med. Journal, 1879, II., p., 501. Report of Sixth Amsterdam International Congress of Medical Science.

Therefore, although during the greater part of its course this affection does not lead to any diminution of the renal secretion, there is ground for believing in a blood dyscrasia depending upon other causes.

The next point for enquiry is whether such blood impurity as may arise from defective elimination or perverted digestive functions can be shown under any conditions to obstruct the capillary circulation. Heidenhain* speaks of copious diuresis occurring after the injection of urea *in spite of the blood pressure remaining below normal, or not being proportionately increased.*

Ustimowitsch and Grutzner† determined a certain constant rise in blood pressure after injecting urea into the blood accompanied by increased flow of urine.

Dr. Rendu‡ in his inaugural thesis quotes M. Potain as having noticed that although injections of urea into the blood do not modify the mechanical conditions of the circulation, yet if a mixture of urea and blood serum be allowed to stand some hours, and be then injected, the arterial tension rises to an unexpected degree.

Drs. Paul Grawitz and Oscar Israel‖ found that neither unilateral artificial nephritis nor extirpation of one kidney, although followed by hypertrophy of the heart, effected any rise in the blood pressure. Their experiments are so interesting in relation to the present enquiry, that a further account of them is necessary. By taking strict antiseptic precautions they were able to clamp either of the renal arteries of a rabbit without any unfavourable surgical result. One and a half to two hours afterwards the clamp was removed. In half an hour after the operation the urine became bloody, and, in from one to two hours the organ if examined was found to be grayish red and opaque. If the clamp was allowed to remain on longer the kidney became of a dirty yellowish grey colour, indicating commencing gangrene. The effect of this operation was to cause intense acute parenchymatous nephritis with fatty degeneration of the epithelium of the tubules. This passed into either granular atrophy or the large white kidney. In the former, microscopical examination showed no trace of nuclear prolification, the substance of the organ consisting simply of wasted tubules. In another series of experiments they extirpated one kidney altogether. They found that the results of these conditions varied accordingly as the animals operated on were young and growing, or old, strong, and fully grown.

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* Pflüger's Archiv, IX., p. i., quoted by Foster. Text book of Physiology, p. 283.

† Quoted by Ewald. Op. cit.

‡ Quoted by Hanot. Contribution à l'étude de l'hypertrophie concentrique du ventricule gauche dans la nephrite interstitielle. Arch. Gen. de Med. 1878, p. 172.

‖ Experimentelle Untersuchungen über den Zusammenhang Zwischen Nierenkrankung und Herzhypertrophie. Virchow's Archiv. Bd. lxxvii., s. 315.

In the young, after 2 or 3 days, the intact kidney began to increase in size to 20 or 30 per cent. more than its normal weight. As the contraction of the other kidney went on the intact organ continued to increase until it equalled the weight of the two kidneys of an animal of the same size. At the same time they ascertained by abdominal section that the other kidney still secreted a watery urine of low specific gravity, but in small quantity.

In the old animals the intact kidney also increased a little, the greatest being in one case of nephrotomy, where the extirpated right kidney weighed 7.7 grms., and the left, after 82 days, weighed 11.3 grms. The hypertrophy of the kidney consisted in a true hyperplasia of the renal elements, at least the enlargement was certainly not due to increase in the diameters of the tubules. The consequence of the imperfect compensation by hypertrophy of the other kidney caused in some cases death by acute or chronic uræmia, in others the animals continued to live, but were ill nourished until the deficit was covered by hypertrophy of the left ventricle. By careful estimations of the relative normal weights of the heart and kidneys, and comparison of these data with the weights of the altered organs, they were able to determine that the cardiac hypertrophy bore a definite proportion to the loss of renal substance, and therefore was truly compensatory for the renal defect. As a rule the heart was not dilated, in many the ventricle was in a state of spasmodic contraction, and they were unable to obtain any confirmation of Senator's views already quoted relative to the pathogenesis of excentric and concentric hypertrophy. In those cases where cardiac dilatation occurred, the symptoms during life indicated a primarily defective or later destroyed compensation, the animals died with acute or chronic dropsy, and the weight proved imperfect compensation. In the case of a large black doe, which died with dropsy of all the serous cavities 10 days after the operation, the cardiac muscle was intensely granular, even after the addition of soda solution. They regard this as evidence of the occasional occurrence of *primary* myocarditis. Much more frequently the myocarditis was secondary, but whichever it was it produced the appearance of "excentric hypertrophy." They were never able to obtain evidence of any increased blood pressure, but by careful measurements they determined a constant increase in the velocity of the circulation. Injections of urea also failed to produce a rise of blood pressure, but *stimulated the heart's* action and quickened the blood stream.

Here we have the explanation of the "self increased activity" of the heart, to which Buhl refers, and also of the myocarditis. The impure state of the blood acts as Bright suggested, by affording an unwonted stimulus to the heart immediately, and this leads to a hypertrophy proportionately compensatory for the loss of renal secreting substance. Myocarditis is the cause of dilatation and the subsequent hypertrophy takes place as Buhl indicates from over nutrition, and increased work from the greater capacity of the ventricle. The rise in blood pressure is not a cause of the cardiac hypertrophy; moreover, in these experiments neither the state of the heart, nor the renal condition nor the blood impurity combined, were able to effect any increase in the tension of the aortic system.

But the high pressure pulse of Bright's disease is a constant and now universally admitted fact. Traube asserted, not without reason, that he could diagnose granular kidney by the pulse alone, and Galabin* has shown that the same condition is present in the other forms of Bright's disease. But a great step was taken when Mahomed † proved that this rise in the blood pressure precedes the occurrence of albuminuria, the development of which he watched at the termination of scarlatina. Here there is no question of structural change in the heart or arterioles, the sole condition present is that of faulty elimination due to the morbid state of the skin. When to this constipation is added, the blood pressure rises, blood crystalloids appear in the urine, and if not averted by a sharp purge, albuminuria follows. Moreover, Dr. Mahomed ‡ has recorded cases of high arterial tension, sometimes accompanied by albuminuria in young dyspeptic patients free from cardiac hypertrophy; and we have published similar cases.* In both, it is suggested that in these young persons, we may have to do with the condition which gives rise to granular kidney later in life. In this place it is of interest to quote the following passage from Dr. Murchison's Cronian lectures on "Functional derangements of the liver." He says, "so often have I observed albuminuria associated with hepatic disorder, which has disappeared completely and permanently when this has been set to rights, that I have little doubt that we have in the liver a cause of albuminuria to which attention has not hitherto been sufficiently directed. The pathology of the albuminuria in these cases may be similar to that of certain cases of diabetes already referred to, the liver having too much work to do, and permitting some albumen to pass through in a form which cannot be assimilated; or possibly there may be some defect in the destructive functions of the liver in consequence of which the albuminous matter, instead of being converted into urea, does not even reach the stage of lithic acid. *It is possible that in many of the cases now referred to the albuminuria may indicate an early stage, not yet described, of the contracted or gouty kidney, yet it is certain that the symptoms may persist or recur during many years without any other symptom of renal disease, and with but little impairment of the general health.*" It is especially to the latter part of this passage, which we print in italics, that attention is directed. When we recall the known connection between persistent lithæmia and contracted kidney, and recollect that in these cases we find high arterial tension, retinal hæmorrhages, occasional hyaline casts, albuminuria, and lithuria, there is warrant for believing that such an early stage of granular kidney, as Murchison here alluded to, has been recognised clinically.

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* On the Connection of Bright's Disease with changes in the Vascular System.

† The Etiology of Bright's Disease and the pre-albuminuric Stage. Med. Chir. Trans. Second Series. Vol. xxxix., p. 197.

‡ Clinical Aspects of Chronic Bright's Disease. Guy's Hosp. Reports, vol. xxiv.

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* The Functional Stage of Granular Kidney. Birm. Med. Rev., Oct., 1879.

To return to the matter in hand, if the rise in pressure precedes all structural change it must be due to increased energy in the cardiac contractions, or to obstruction in the distant parts of the vascular system, or to both combined. Most modern writers, Grainger Stewart, Broadbent, Mahomed, Ewald,. and others, regard the obstruction as seated in the capillaries, and the cardiac hypertrophy as the consequence of this impediment to the circulation. But we have seen that the cardiac hypertrophy must be regarded as directly dependent on the state of the blood, and therefore is rather to be regarded as a cause than an effect of the rise in blood pressure.

But Israel and Grawitz appear to have proved that the cardiac hypertrophy *per se* does not raise the blood pressure, nor does the state of the blood which manifests itself by the stimulus to the heart's action seem to suffice to produce any peripheral obstruction great enough to cause this result. We are compelled therefore to seek some other factor, or to believe that in some respect the conditions of these experiments differ from those of patients suffering from Bright's disease. Such a difference plainly existed in the intact state of one kidney, and it may be that the increased functional activity of the heart in these animals sufficed to maintain elimination; the rise of blood pressure, with which we are clinically familiar, being the result of a higher degree of toxæmia than that present in these experiments.

As the rise in blood pressure precedes all structural changes, and as the theory of vaso-motor action is inconsistent with the augmented secretion of urine, we may assume an increase in the capillary resistance as the other factor, which, combined with the augmented cardiac energy, determines the characteristic pulse of Bright's disease. How far Dr. Johnson's theory, modified in accordance with Dastre and Moret's observations, may be accepted as assisting the above named factors, we can not determine, but we are unwilling to exclude it altogether from some share in this partnership, in which one other participator has only a hypothetical existence.

These conclusions, which have been arrived at by combining and comparing pathological, clinical, and experimental data, suggest certain practical conclusions.

1. In chronic Bright's disease the augmentation of the cardiac function is compensatory to the renal defect. This view confirms the propriety of the practice of administering digitalis in these cases. But as far as possible, elimination should be favoured by the skin and bowels, while the diet should consist of elements containing as small an amount of urea-forming substances as the general condition of the patient may warrant.

2. The high tension pulse indicates a high degree of toxæmia and relative failure of the kidneys. As the toxic material in the blood stimulates the heart (Israel and Grawitz) and probably the kidneys (Heidenhain.) without raising the blood pressure, polyuria or even albuminuria may precede any change in the state of the pulse. Careful examination of the urine is therefore of the greatest importance for detecting the earlier stages of the condition which leads to granular degeneration of the kidneys.

ROBERT SAUNDBY.

MEDICAL OPHTHALMOSCOPY.*

In his introduction the author urges the routine use of the ophthalmoscope in all diseases in which abnormal changes in the fundus oculi are even occasionally met with—advice we fear too often neglected by physicians, and hence the cause of much valuable information being constantly lost; here he also shortly alludes to some ocular conditions which are congenital, and some which are of interest only to the ophthalmic surgeon. He also points out how errors in refraction may be ascertained, and very strongly advocates the constant use of the ophthalmoscope by the "Direct Method," not to the exclusion of the "Indirect Method;" but for full information on these points he refers his readers to ophthalmic surgeons, and their writings.

In the first part of the book he deals generally with the changes found in the fundus oculi, which are of general medical significance, commencing with the changes found in the retinal vessels, and under this head he says, "A vein underfilled may present an increased width" in consequence of want of contraction (atony), and flattening out, in this way he accounts for the large size of the veins as seen in anæmia, leucocythæmia and allied conditions.

Speaking of diminished size of the arteries, he believes that contraction from persistent spasm is one cause, and considers that this "is common in Bright's disease." This is of course entirely theory, and bearing in mind the difficulties of really determining beyond doubt whether the retinal artery is smaller than usual, in cases of moderate dimunition of size, and what is the cause of the diminution, we are inclined to fear that the author has allowed preconceived theories to colour his observations in this case; and however probable this may be, it cannot at present be considered to be a settled point. In treating of aneurism of the retinal vessels, he states that it is rare in the larger branches, but he finds it less rare in the smaller branches (where he has seen it in Bright's disease) and the capillaries, as found in a case by Dr. Mackenzie recently reported, in which this condition was the cause of copious hæmorrhage into the vitreous. .

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* "A Manual and Atlas of Medical Opthalmoscophy." W. R. Gowers, M.D., F.R.C.P. H. K. Lewis, London, 1879.

Arterial pulsation he finds to be "especially frequent" in aortic regurgitation; but otherwise rare. Venous pulsation is commonly a normal condition and of no medical significance—the author adopts the usual means to explain it.

In contradistinction to Dr. Hughlings Jackson, who, during an epileptic attack, once "saw a vessel disappear," the author who examined a case during an epileptiform attack, saw no change take place in the retinal artery, and in contradistinction to Dr. Clifford Allbutt, he finds no abnormal hyperæmia during the intervals of the fits. Retinal hæmorrhage he considers depends on one or both of two causes—increased intravascular pressure—decreased strength of the vascular wall. The blood state he does not consider plays a part except by causing vascular degeneration, which degeneration "although it is not often that it can be demonstrated post mortem," is the cause of hæmorrhage in "general blood diseases, especially in kidney disease, diabetes, pernicious anæmia," and the like, although "in some of these cases, as anæmia or leucocythæmia, the blockage of the vessels may assist."

In embolism, the vessels he finds sometimes to remain full at the periphery, though shrinking to threads on the disc; this, he believes, is due to some anastomoses of the retinal artery with vessels from another source. "Hæmorrhages are rare" in this condition.

Hyperæmia, or congestion of the disc, often precedes primary atrophy caused by "blows in the neighbourhood of the eye," by "tobacco amaurosis" and "lead poisoning," but he cannot confirm Dr. Clifford Allbutt's statement that it is found in "locomotor ataxy."

In the part devoted to inflammation of the optic nerve, we find stated that "the degenerative changes which occur when the neuritis is very intense, and the swelling wide, may have an appearance strikingly similar to that of the albuminuric affection." This, we have often found ourourselves, and would especially draw attention to it. In neuritis colour blindness often occurs, and "may exist when acuity of vision is little impaired," the order of the loss is frequently irregular. Sudden blindness (in neuritis) is due to "concomitant brain disease." Hemiopia is due to intracranial causes. "An unsymmetrical lateral defect, especially loss of the temporal halves, commonly means pressure on the chiasma," which Dr. Gowers believes is a very common cause of blindness in these cases, and to be caused by "a distended third-ventricle." In dealing with the various theories to account for the occurrence of neuritis in intracranial disease, he gives briefly the views at different times expressed by Graefe, Schmidt, Manz, Jackson, Allbutt, Benedikt, and Galezowski, &c., and states as the result of his own observation, that in "cerebral tumour evidences of descending neuritis may be traced much more commonly than current statements suggest, while in case of meningitis the evidence of descending neuritis is almost invariable." Distention of the nerve sheath he finds to be specially connected with "increase of subarachnoid fluid," and "alone is probably insufficient to cause papillitis (or neuritis), but may, perhaps, intensify the process otherwise set up." In cases in which the typical appearance of "choked disc" were seen with the ophthalmoscope, the author has "never been able to discover any evidence of constriction of the vessels in the sclerotic ring or behind it." It is always "in front of the sclerotic, in the substance of the swollen papilla, that the vessels present conspicuous constriction," and he thinks that the need of the term choked disc is to be deprecated in the present state of our knowledge.

"In atrophy of the optic nerve from toxic causes, as tobacco, alchohol, there is usually a central defect" in the field of vision. "In such cases there is generally a still greater central loss for colour vision, especially green and red."

In part two he deals separately with the various diseases of the system in which changes are found in the fundus oculi, and describes, under each disease, the various changes that may be found in the eye, so that this is an elaboration in detail of part one, and is compiled from facts observed not only by himself, but by some of the most honoured and trustworthy observers in this country and on the continent; the source of the various facts and opinions being generally given.

In treating of meningitis he finds congestion of the optic disc, with or without œdema, to be often present; and quotes from a recent paper by Dr. Garlick, on the appearance in 26 cases of tubercular meningitis, read at the Medico-Chirurgical Society.

Tubercles in the retina he finds rare; tubercle in the choroid is less rare, and only occurs when tuberculosis "is widely spread." It is found more commonly in acute than chronic tuberculosis; and in both children and adults.

The description of the changes found in Bright's disease is very good, and well worth perusal. In addition to the contraction of the arteries, before alluded to, the author describes degeneration visible (rarely) in the vascular coats, and alludes to a very interesting and singular case, of which he gives a description and a plate. Miliary aneurism, too, he has found in this disease. Hæmorrhages, often associated with degenerative changes in the retina, "sometimes occur, however, apart from other changes, as isolated evidence of the hæmorrhagic tendency." In addition to the usual degenerative changes generally called retinitis albuminurica, papillitis or neuritis occurs in this disease in the author's experience, without associated evident coarse intracranial disease, though often associated with headache and vomiting, and even convulsion (probably uræmic). We wish particularly to call attention to this, because, to the unwary, the evil effects of the internal administration of mercury in this disease, have, more than once, been the first things to excite suspicion, and lead to a discovery of the true nature of the case. In diabetes the author has found changes in the retina closely resembling retinitis albuminurica. We have also seen one case in which the appearance was identical, though there was no albumen in the urine, which had sp. gr. 1032, and a large quantity of sugar. Amongst other diseases there is a good description of amaurosis caused by tobacco, alcohol, and lead.

Fifty most carefully recorded, and instructive cases, twelve chromo-lithograph, and thirty-six auto-type representations of the fundus oculi in disease, and nearly as many plates, showing the microscopic changes found in diseases of the optic nerve and retina, each fully explained in type close the volume.

Throughout the whole work there is constant evidence of the care which Dr. Gowers has taken in forming his opinions, not only by a scientific and painstaking elaboration of the materials placed at his own disposal, but by a wide and deep research into the writings of the best authors, and we have no hesitation in predicting that this work will long reflect credit upon its author, and be a valuable source of information to the practitioner, and will rank high amongst our books of reference.

PSYCHOLOGICAL MEDICINE.*

THE study of insanity occupies a very moderate degree of the attention of those who have charge of medical education. In most schools there is a course of lectures wherein an attempt is made to instil into students some knowledge of what their duties as physicians will be when they have to deal with cases of insanity, and a more or less scantily filled-in outline is given of the prominent clinical and pathological features of the diseases which come into this category. In a few, this rather perfunctory course is supplemented by clinical teaching at an asylum, but this is seldom more than an occasional visit ; in some it is a mere pleasure excursion. This state of things is not satisfactory, if we imagine it possible to turn out men in four years, competent surgeons, physicians, accoucheurs, oculists, aurists and alienists ; but if we adopt the more modest standard of wishing to give students that general scientific training which shall fit them to study such branches of their profession as taste or circumstances may lead them to select, we need not regret the absence of mental diseases from the already over-burdened list of subjects which students are expected to prepare themselves in, before presenting themselves for examination. Let us have a good classical education, followed by a sound scientific training, as a preliminary to that study of disease, which commencing in a surgical dressership, must be continued throughout a life-time in the wards and out-patient rooms of hospitals, in asylums, and at the bedsides of our private patients. In a sound scheme of medical education this should be recognised, by giving a minimum qualification at the end of four years, which would enable its possessor to become a resident in a hospital, or an assistant to a practitioner, while, at the end of not less than two years more,an examination in the practice of special departments, should confer the distinction of professional proficiency, each candidate being left to elect to graduate in any one of certain well-defined branches of professional study.

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* A Manual of Psychological Medicine. By J. C. Bucknill, M.D., Lond., F.R.S., F.R.C.P., and Dr. D. H. Tuke, M.D., F.R.C.P. London : J. and A. Churchill.

The Manual of Psychological Medicine, which has now reached its fourth edition, is a worthy illustration of the pitch of excellence to which the study of mental diseases has attained in this country in spite of its almost total divorce from the schools of medicine. No complete manual, indeed no manual approaching it in completeness, exists in any other language, and in the present edition the whole has been carefully re-edited, and brought up to date. Some of the additions are perhaps of doubtful value. There are a good many sphygmograpic tracings which certainly do not indicate more than the physical state of the patient would lead us to suspect, and nothing characteristic of his cerebral disorder. The chapter on Histology, by Dr. Batty Tuke, contains copies of some of the plates and descriptions taken from Mierzejewski's monograph, on the lessons of the brain in General

Paralysis, and Major's papers on the Pathology of Senile Dementia. There is some blunder in the numbering of the plates in this chapter, which makes reference to the figures rather difficult, but which appears to consist in plate xi. being always referred to as plate xii., and *vice versa.* Further commendation of such a well known book is superfluous, and we may therefore content ourselves with this notice to our readers of the publication of the new edition.

GLAUCOMA.*

This volume presents in its original form the essay which gained the Jacksonian prize for 1878, and we heartily congratulate the author on the distinction he has earned so well.

If Mr. Priestley Smith cannot claim to have finally settled the pathology of Glaucoma he has supplied a large amount of evidence to fill up a great gap in our knowledge, and has suggested a theory which is not only original but possesses such a high degree of probability as entitles it to be accepted as the basis for further enquiry.

The characteristic sign of glaucoma is, as is well known, an increase of intra ocular tension, and the estimation of this tension is of considerable scientific importance. Mr. Priestley Smith has invented a tonometer, which appears to be a very ingenious and admirably contrived instrument, consisting of three parallel ivory rods, capable of independent movement in their longitudinal directions and carrying indices by which their movements are registered. When applied to the surface of the eyeball, they measure the area of curvature, and by subtracting the distance travelled by the middle rod from the mean of the distance travelled by the outside rods, the sine of the arc is obtained. In order to measure pressure, the centre rod is loaded by a ten gramme weight attached to a hook at the end of a card passed over a pulley, and the height or sine thus obtained under a known amount of pressure is the measure of tension in the eyeball. There are of course fallacies, of which the greatest is the variation in the elasticity of the coats of the eyeball, and another not so important, the fact that the amount of fluid displaced, and consequently the resistance to be overcome is greater as the curvature of the surface is less. Neither fallacy is avoided by this instrument; and the results are therefore, only approximative, but still it gives results sufficiently constant to be of practical use, while it has certain advantages in its application, which do not exist in Monnik's tonometer, the principle of which is, perhaps, better.

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* "Glaucoma: its causes, symptoms, pathology, and treatment." By Priestley Smith. London: J. and A. Churchill.

The most original part of the book is the section on pathology. Taking up the subject where the researches of Leber, Max Knies, and Ad. Weber have carried it, Mr. Smith shows how the overfulness of the eyeball, first pointed out by Mackenzie, has had light thrown upon it by the discovery of the facts that the aqueous humour normally escapes from the eye at the angle of the anterior chamber, which in glaucoma is compressed or closed, and that the only definitely curative procedures are those practised at this spot. He next proves by argument and experiment, that normally the pressures in the aqueous and vitreous chambers, are approximately the same. while a slight excess of pressure in the vitreous chamber, equal to 5 cm. water, suffices to close the channel through which the aqueous humour escapes.

The whole of the intra-ocular fluid escapes by the channel at the angle of the aqueous chamber. This fluid is secreted by the ciliary processes and passes in both directions through the suspensory ligament. When the pressure in the vitreous is in excess the lens and suspensory ligament are pushed forward so as to compress the angle of the anterior chamber and to prevent the escape of fluids. This excess of pressure in the vitreous may be due to excessive secretion in the vitreous chamber, diminished secretion in the aqueous chamber, or retarded passage of fluid from the vitreous to the aqueous chambers. This latter condition is the one to which most importance is assigned. Glaucoma maintains an almost constant relation to commencing senility, and at this period of life the lens becomes flattened and increased in diameter, thereby approximating its margins to the ciliary processes and diminishing the circumlental space through which the fluid passes from the vitreous to the aqueous chamber. The consequence of such partial obstruction is increased tension in the vitreous chamber causing pressure on the veins throughout their whole course, from the ciliary processes to the points where they escape from the inner surface of the sclera, and consequent swelling of the ciliary processes. When the latter occurs the obstruction is complete by narrowing still further the interval between them and the lens, and by facilitating compression of the angle of the anterior chamber, the immediate cause of which is the compression of the ciliary processes against the periphery of the iris by the advancing suspensory ligament. The incidence of acute glaucoma occurs under circumstances of sudden ocular hyperæmia, such as are clinically familiar, leading to swelling of the ciliary processes, the lens being enlarged as above described.

In the space at our disposal we are only able to present the above imperfect summary of the line of argument by which the author maintains his views, but we believe this is sufficient to indicate the importance of the advance made. The various statements made are attested by numerous experiments and observations, illustrated by drawings and chromo-lithographs, the whole proving the author to possess considerable mechanical and artistic accomplishments.

The fear of being accused of impartiality must not be allowed to deter us from saying that we regard Mr. Priestley Smith's book as a brilliant contribution to ophthalmology, of which British Surgery may be justly proud.

THE RIVIERA.*

No disease is of greater importance in this country than pulmonary phthisis, and no part of the enquiry relating to that disease equals in interest the question of the value of a temporary or permanent residence in a more genial climate, as a means of arresting, retarding, or curing the march of this terrible enemy.

It does not need much elaborate argument to convince any one who has the care of phthisical patients, that the English winter and spring months are especially trying to them, in consequence of their extreme liability to occasion accessions of catarrh and pneumonia, as well as from the dyspepsia and general enfeeblement of health, induced by compulsory confinement to the house during the long period of cold and damp weather. It is quite obvious that much risk of further mischief may be avoided, and nutrition greatly promoted by residence during these months, in a climate where there is practically a second English summer. It must not be forgotten that there is nothing inevitably progressive about phthisis, the two factors needed to favour healing being, first, absence of catarrh; and second, the absence of dyspepsia; it is hard to say which is the more important; with catarrh the local disease gets worse, with dyspepsia the patient can never get better.

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* "The Riviera." By Edward J. Sparks, M.A., B.M., Oxon. London: J. and A. Churchill.

The question, therefore, resolves itself mainly into Where to go? Fortunately we need not condemn our patients to expatriation in order to obtain for them at least some degree of the above advantages. At Bournemouth, Ventnor, and Hastings, many phthisical patients pass the winter free from catarrh, and in the enjoyment of out-door exercise. There are various circumstances which guide us in the choice of a winter residence. We do not send patients to travel who have hectic or diarrhœa, or who are extremely weak and emaciated; we do not send patients with feeble digestions, requiring home comforts to foreign cookery, and life *en pension*, especially if they have had no experience of continental modes of living; above all we do not send our patients away without a companion, a wife, a sister, or a brother.

But having determined to send our patient abroad, there is a wide choice of places. All are spoken well of by some, and as much abused by others, showing that all cases should not be dealt with alike. The long sea voyage to Australia is very highly spoken of, and is generally most beneficial; but it is chiefly suitable for early cases in young men. No one ought to go a long voyage who is not in fairly good health, and who cannot put up with a certain amount of discomfort. The Cape, as we have heard from the late Dr. Harry Leach, is dear and rough. South

America, more especially the Andes, have the highest reputation, but it wants a considerable amount of personal courage to seek a residence in such unsettled countries, where too, the accommodation for travellers is at least very different from English ideas of comfort. Madeira has lost its old reputation, the dampness of the climate appearing to act prejudicially on many cases. Egypt is dear, and the plagues are still there. Undoubtedly at the present time, the two most popular resorts perhaps, on account of their comparative warmness, as well as the benefits ascribed to residence in them, are the various towns of the Italian and French Rivieras, and the Alpine Sanatoria. The comparative merits of the warm sheltered Riviera, and the bracing ice bound Alpine plateaux, are still undecided. The latter have the advantage of novelty, but, in addition, there is reason to believe that high altitudes are after all most suitable to the majority of phthisical patients, and that while advanced cases obtain more comfort and enjoyment at the Riviera, earlier cases may find a cure among the Alpine snows.

Dr. Spark's book contains just the information we require about the different towns in the Riviera, whenever the question arises of sending a patient abroad, and we have to discuss where he shall go. The literary style is excellent ; and the book is by no means dull reading. We do not find it easy to summarise the information ; but apparently, in Dr. Spark's opinion, Hyères and Cannes are bracing, but rather exposed. Nice is gay, perhaps too gay for invalids. Mentone has the best climate, but a bad water supply, a superfluity of 'loafers,' and is dear. Bordighera is charming for people who like a country life, and can enjoy scrambling among the hills. San Remo is dull, with a tendency to prayer meetings. Alassio is cheap and good; but comparatively untried as a health resort. At Pegli the natives have a disagreeable habit of going about *en deshabille,* and are tiresomely industrious, hammering away at shipbuilding. Cornigliano is a small fishing town, cooler than most of the Riviera resorts; the hotel is well managed and moderate; there is an English service at the hotel, and a resident English doctor. Nervi has no roads; is very wet and very dull. Rapallo has, or had, an "English chaplain, of high-church proclivities, who performed service in a small room, twelve feet by ten, lighted by a door-window, and tenanted by a dozen chairs; three services a day" in the week, and "all day" on Sunday; but is otherwise as dull and as wet as Nervi. Spezia has "a moderately warm, moderately moist, calm, and tolerably equable *mild climate,*" and is the Portsmouth of Italy, having a great arsenal and dockyard. For further information, we must refer our readers to the book itself. In a future edition we hope Dr. Sparks will add a map of the coast. His work is one which every practitioner will find useful, and which will be much read, we suspect, by our countrymen and countrywomen who intend visiting the Riviera.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY.*

THE American Gynecological Society was founded in 1876, and like many Transatlantic Institutions has made very rapid progress in a very short space of time. The object aimed at by the founders was the formation of a National Society, which should have for its pursuit the promotion of knowledge in all that relates to the diseases of women and obstetrics. How far this has been attained up to the present time is exhibited in the two volumes of transactions before us, which will, we are of opinion, be universally admitted to indicate the activity and value of such a laudable enterprise.

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* "Transactions of the American Gynecological Society," vol. ii., i. Boston. 1877-1878.

Among the contributions to the first volume we notice one from Dr. Barnes, on the Relations of Pregnancy to General Pathology, the substance of which will probably call to mind the inaugural address, delivered by him before the Midland Medical Society. Perhaps one of the most suggestive papers is one by Dr. Batty, "on the extirpation of the functionally active ovaries for the remedy of otherwise incurable diseases." The history is given of ten cases, two of which died. In nine of these the operation was made through the vaginal *cul de sac*; in one through the abdominal wall. The author gives another paper in the second volume, raising the enquiry, "Is there a field for Batty's operation?" In the discussion which follows the reading of this, there is an admirable and judicious summary, by Dr. Peaslee, well worthy of perusal.

While, by general consent, this operation is considered to be justifiable under a certain combination of circumstances, it cannot at present be considered as settled how far these conditions are capable of being defined. The operation, as performed by Professor Hegar, for severe and continued hæmorrhage, from the presence of fibroids, opens a wide field for future observation, and the success which has hitherto attended isolated cases where it has been resorted to for the cure of ovarian disease of long standing, render it likely that it may become more general. While such a formidable undertaking is on its trial as a remedial measure, it is but just to Dr. Batty to give him due credit for the fair and temperate manner in which he has given the record of his own experience in this direction. Not as a zealous advocate for the operation, not as an enthusiast with a panacea for all ovarian evils; but as an original and deliberate observer, and as an earnest and careful worker in the pursuit of truth.

In a well prepared paper by Dr. Byrne, on excision of the cervix uteri, some valuable information is conveyed. It also illustrates a happily unusual occurrence in that one of the cases treated by him was subsequently made the basis of a suit at law for alleged malpractice, the patient estimating her grievances in the loss of a cancerous cervix, at twenty-five thousand dollars! It is gratifying to note that the trial was not pursued, and that the support given by eminent experts formed a complete answer to such iniquitous charges; a support that cannot be too widely known in this country.

Altogether, the character of the papers, and the tone of the discussion, will give these Transactions a foremost place in the literature of this branch of the profession, and afford strong proof of the power of organisation, and capacity for work, which actuated the comparatively small body of workers.

The volumes are well executed in every way, and too much praise cannot be given to those who so well launched, and have so successfully piloted them to their present issue.

OBSERVATIONS ON CONTRACTIONS OF THE FINGERS; ALSO ON THE OBLITERATION OF DEPRESSED CICATRICES.*

Mr. Adams states that he has re-published the two essays which constitute this book because he thinks the subjects they treat of are not generally considered amenable to surgical measures. The cause of idiopathic digital contraction (first accurately described by Dupuytren), the author states is more often due to gout than to any local influence. As reasons for this statement, it is alleged that professional men are often subjects of the malady, that the left hand is seen affected, and cases have been known where several members of a family have suffered with the contraction. Mr. Adams finds that if only one finger is drawn downwards, it is most frequently the ring, and women are stated to be exempt from the malady. To this last remark we must demur, as on several occasions we have noted the contraction amongst female factory hands in Birmingham. The pathology of the affection is in accordance with Dupuytren, regarded as a thickened and contracted state of the palmar fascia, of which various stages exist, viz.: a nodular induration of the fascia, this being followed by the adhesion of the skin and fascia, hence puckering; and thirdly, by the formation of a thick cord-like band of the fascia, which pulls the ring and little fingers downwards towards the palm of the hand. It is pointed out that the insertions of the digital prolongations of the palmar fascia are into the periosteum of the first phalanx external to the sheath of the flexor tendon.

The opinions of many surgeons on the proper treatment to be adopted in these cases are enumerated; the author recommends the subcutaneous division of the contracted fascia at various situations.

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* "Observations and Contractions of the Fingers; also on the Obliteration of Depressed Cicatrices." By William Adams, F.R.C.S. London: J. and A. Churchill, 1879.

1. In the palm of the hand.
2. Near the web of the fingers.
3. At each of its lateral digital insertions.

Median incisions, it is thought better to avoid on account of the position of the flexor tendon. Extension is made of the freed digit immediately after the operation, by means of a splint, fixed either anteriorly or posteriorly, and this must be worn day and night for three weeks. At the expiration of this time the same should be applied only on retiring to rest. It is thought by this proceeding that a relapse but seldom takes place, and even if it should, another subcutaneous division can be recommended at an early date; "this contrasts very favourably with the relapsed cases after open wound" (a procedure recommended by Busch of Bonn) "which from the nature of the cicatricial contraction are incapable of further relief." Upon the adoption and practice of the various minutiæ described, Mr. Adams believes much of the success of operating in such instances depends. The second portion of the book is occupied with the subject of the obliteration of depressed and unsightly cicatrices in conspicuous positions. These may be rendered much less evident by throughly dividing, subcutaneously, all the deep adhesions of the cicatrix, and keeping the same raised for three days by means of a couple of hare lip needles, introduced at right angles to each other under the scar, thus inducing more or less inflammation. After the withdrawal of these needles, the cicatrix gradually falls, until level with the surrounding parts.

Four plates and fourteen minor engravings add to the value of a work which is both interesting and useful.

ORIGINAL COMMUNICATIONS.

THE STATE OF THE RETINA IN ONE HUNDRED CASES OF GRANULAR KIDNEY.

BY HENRY EALES, SURGEON TO THE BIRMINGHAM AND MIDLAND EYE HOSPITAL.

AMAUROSIS, or defect of vision, was first noticed in association with albuminuria in 1812, by Wells.* Since the introduction of the ophthalmoscope it has been divided into two different kinds: *First.*—That due to uræmic poisoning of the brain centres, or retina—or probably both; and in which no structural changes have been found in the eyes. *Second.*—That in which structural changes are found in the retina, and are the cause of amaurosis. *First noticed* post-mortem by Turck in 1850.† It is with this *second* form that I am now about to deal.

The ophthalmic changes have been more or less comprehensively described by different authors. Dr. Gowers, the most recent writer on this subject, in his work on medical ophthalmoscopy, published this year, sums up the changes as follows:—"The retinal disease presents certain elements which are variously combined in different cases. 1. *Difuse slight opacity* and swelling of the retina, due to œdema of its substance. 2. *White spots* and patches of various size and distribution, due for the most part to degenerative processes. 3. *Hæmorrhages.* 4. *Inflammation* of the intra-ocular end of the optic nerves. 5. *Subsidence* of inflammatory changes may be attended with atrophy of the retina and nerve.

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* "Med. Chir. Trans." Vol. iii.

† "Zeitschrift der Weiner Aerzte."

In most cases one or more of these changes predominate, especially in the early stage of the affection, and, according to the elements most conspicuous four types of disease may be distinguished. 1. The Degenerative. 2. The Hæmorrhagic. 3. The Inflammatory. 4. The Neuritic."

According to most authors, the degenerative is only a second stage of the inflammatory, which must precede it, and which is often followed by absorption, and in many cases atrophy; and hæmorrhages are found in all stages, especially the inflammatory and degenerative. This was the view entertained by Dr. Clifford Allbutt, in 1871.* *Neuritis*, often passing into neuro-retinitis, frequently precisely similar to that seen in cases of intracranial tumor, has been noticed by Brudenel Carter, and others; but Dr. Gowers seems to be the first to give it a prominent and decided place in association with Bright's disease. I have myself, (in the practice of others), seen this affection three times associated with cerebral symptoms, such as vertigo, headache, vomiting, and lead to the hasty diagnosis of cerebral tumour; the true nature of the affection only being suspected after the serious effects of the internal administration of mercury, both on the general health and the eyes of the patients, became obvious.

Other conditions, such as detached retina, embolism, (Voelckers), choroidal hæmorrhage, and atrophy, opacity of the vitreous, and degeneration of retinal arteries (Gowers, one case), have been seen. Dr. Gowers believes that contraction of the retinal arteries from spasm is common in Bright's disease, and he has reported several cases in the British Medical Journal, Dec. 9th, 1876.

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* The Ophthalmoscope in Medicine. Page 426.

In speaking of the degenerative form he says, "It commences usually without signs of inflammation," and so differs from most preceding authors as to its invariable inflammatory origin. My own experience quite confirms this statement. All observers concur in stating that this affection, though found in all forms of renal affection, not even excepting the lardaceous, is most usually found in association with granular kidney, of which it is almost diagnostic. Most authors concur in stating that it is usually sufficiently characteristic to enable the observer to diagnose with tolerable certainty the existence of kidney disease with the ophthalmoscope unaided.

Microscopic Characters.—I need scarcely describe the microscopic changes seen in the hæmorrhagic, or the inflammatory deposits found in the retina, with, or without œdema; but a few remarks on the spots of degeneration and the state of the vessels is, I think, necessary. These (degenerative) spots have been found by all observers to consist of—

1. Circumscribed patches of granule cells, and oil globules, that is patches of fatty degeneration.
2. Thickened fibres of Müller containing oil globules.

It is these latter which give rise to the stellate, glistening spots found radiating around the macula lutea, and which are so characteristic of this affection. The first patches alluded to are found in the nerve fibre layer chiefly, but also in the deeper layers. The nerve fibres themselves are seen to be thickened and degenerated, and would seem to be often the source of these degeneration patches. "Occasionally the layer of rods and cones present remarkable thickening" (Gowers). In Dr. Gowers' work on medical ophthalmoscopy these changes are well described, and plates are added showing the changes he has himself seen (microscopically) in the tissues in this affection.

The Vessels.—In addition to white lines along the vessels due to fibrosis of the outer coat, or to perivascular exudation and white patches of degeneration, aneurismal dilatation of the larger arteries were seen in one case by Dr. Gowers.

Microscopically the same author has found "an increase of the nuclei of the capillary wall," and "irregular dilatations," that is aneurisms in the capillaries.

Different observers disagree very materially as to the per centage of persons suffering from kidney disease in whom morbid changes are found in the eyes. Thus Leber, writing in Graefe and Saemisch's Handbook of Ophthalmology, states, (p. 585) that—

Friedreichs found impairment of sight in 13 per cent.
Lebert ,, ,, ,, 20 ,,
Lecorché ,, ,, ,, 21 ,,

while, Galezowski found retinitis albuminurica, 50 times in 150 cases, *i.e.*, in 33 per cent.; and Wagner in 9 per cent. Landouzy, on the other hand, thought the existence of retinal disease was invariable. We shall see from my own cases, that statements, founded on the state of the vision, are not reliable, and of little service as a basis for estimation. My own observations tend to confirm those of Galezowski, that we may expect to find retinal changes in about one in every three cases. Before going into the details of my cases, I would state that the chief object of the investigations which have led to, and are the basis of, this paper, was to fix more firmly and precisely the probable per centage of those cases in which retinal changes are found; on which point opinions appear to differ widely, and the material on which to form an opinion, is very scanty, and in most cases unreliable

I am indebted to Dr. Saundby, both for prompting me to make these observations, and also for furnishing the cases on which they have been made; all of these patients have been sent to me by Dr. Saundby during the last 12 or 15 months from the General Hospital, after he had seen them, and made a diagnosis of granular kidney from their general symptoms; and I would take this opportunity of thanking him for the notes of their general condition, which he has furnished me with, and which have entailed the "lion's share" of the work falling upon him. All of these cases (except one) had the pupils dilated with atropine, and were examined by the "direct method" of illumination; because I have found by experience, that unless both these points are strictly adhered to, the more minute changes found in a large number of cases will certainly escape detection, and consequently the conclusions be erroneous. As regards the evidence on which the diagnosis of granular kidney was made, I would state that in 100 cases examined 94 had albumen in urine, varying from a trace to a copious amount, the rule being the presence only of a trace, while in nine cases only was it copious. In 57 cases the sp. gr. of the urine was noted, and it was found to vary from 1.001 to 1.025, a low sp. gr. being the rule.

In 3 cases only was it above 1.020; in 46 only was it below 1.015; while in 17 only was it below 1.005. In 12 cases, in which casts were looked for, they were found in every instance. Ninety-seven out of the 100 cases had polyuria, as evidenced by their getting up at night to make water, in some cases several times. In 85 cases the state of the heart and pulse were noted, and in 71 accentuation or reduplication of the sounds of the heart, or firm pulse, seemed to indicate high arterial tension, while in 22 cases excentric hypertrophy of the heart was evidenced by a diffused impulse, or by the apex beat being displaced outwards and downwards to the sixth interspace. The large majority complained of symptoms of dyspepsia, such as nausea, vomiting, diarrhœa, constipation, and most suffered from headache, vertigo, palpitation, and general pains about the body, especially in the lumbar region. Cough and spitting too were common symptoms. The occupation seemed to have no relation to the condition, except, perhaps, it is noteworthy that four were house-painters. In 53 cases the state of the bowels was noted. In 31 they were open and often loose; in 22 they were costive; so that constipation would seem to have been the more unusual state. In 46 cases enquiries were made as to the state of their vision before the instillation of atropine drops, but the vision was not tested. In 28 of these cases complaints of bad sight were made, and in only six of these, that is a little more than one in five, could any obvious abnormal condition be discovered in the retina; while in 18 persons who stated that their sight was good, retinal changes, such as specks, were found in five, that is, nearly one in three.

These facts confirm the opinion just now expressed, that all statistics as to the per centage of cases of retinitis in albuminuria which are founded on statements of vision, are of little or no value, and also amply confirm the experience of all recent observers that retinal changes, even of considerable extent, are quite compatible with a good state of vision. This was well-shown in six cases in which I tested vision by means of type and lenses, in whom considerable changes were found in the retina, and yet, with dilated pupils, their vision was nearly normal. Two cases only were women. It is probable that in the large number, if not all, of those complaining of "bad sight," optical defects were the cause of the complaint. In two cases only did myopia come under my notice.

I will now pass to the condition of the eyes in these 100 cases:—In 28 cases abnormal changes were found in the retina; in 12 of these changes were found in both eyes; in 16 changes were found in *one* eye only. This rather militates against the views generally expressed that changes are *almost invariably* found in both eyes simultaneously, and can be explained by assuming—1. That the affection often affects one eye before the other. 2. That the affection often gets well in one eye before the other. 3. That it is often uniocular, which is very improbable.

The two former views, especially the first, have generally been expressed by previous writers.

In the twelve cases in which changes were found in both eyes four had diffuse retinitis, with fibrinous patches and œdema, and also whitish glistening patches; one had diffuse retinitis in one eye, with only one hæmorrhage in the other eye; five had many whitish round patches of the atrophic kind; two had only a few white round patches of the atrophic kind.

In the 16 cases in which changes were found only in one eye: in 6, several white round patches (atrophic) were found; in 5 a few (one or two) spots only were found; in 1, a single hæmorrhage near the disc was found (recent); in 2 cases one or two *black* specks were found, associated in one case with white specks, the black in one case being in centre of white speck; in 1 case two large (about size of disc) round soft-edged whitish patches were found close to the disc in right eye; in left eyes striæ in lens—neither pupil fully dilated.

In one of the first six cases, *and in this case only*, two ophthalmoscopic examinations were made, with an interval of about two months between them. At the first examination no ophthalmic changes were found; at the *second* examination several white specks were found in one eye, especially along the side of one branch of the retinal artery, but there was no evidence of inflammation of the retina.

In addition to the 28 cases in which retinal changes were found, in three cases the disc was abnormal; in one, the disc was abnormally pink (hyperæmic); in two, the disc was abnormally pale (atrophic), and had its margins blurred in both eyes.

Probably the case of hyperæmia was the first stage of an incipient neuritis, while the two cases of atrophy were probably secondary to, and caused by, preceding neuritis of a slight form. If this deduction be correct, we have evidence of neuritis three times—that is, in 100 cases 28 had retinal changes; 3 had changes in the disc; making 31 cases in which abnormal conditions of the retinæ or disc were found, against 33 per cent. (Galezowski).

Changes found in other tissues than retina and disc.—Arteries.—In only two cases did I fancy the retinal artery was slightly contracted and small, without the co-existence of other evidence of retinal disease; and in these two cases I could not feel quite sure that it was abnormal.

Choroid.—In two cases patches of atrophy of the choroid were found, but these were associated with extreme myopia in one case. In the other case, one small circumscribed round patch of atrophy was found in the choroid, near the *fovea centralis,* and was not associated with myopia.

Vitreous—was opaque in two cases (one myopia). In one most peculiar case, white, very glistening opacities were found in the posterior part of the vitreous, so like those seen in the retina in this disease, that they were, on the first glance, thought to be in the retina.

Veins.—In seven cases fulness and tortuosity of the veins were noted associated in one case with specks in the retina. In five cases pulsation of the veins was noted.

Pupil.—In six cases it was noted that the pupil was not fully dilated, and was in some cases oval. In one case this was associated with fulness of the veins.

It is noteworthy that in 14 cases opacity of the lens existed—*double* and incipient in eleven cases ; single in three cases—in no case sufficient to prevent fundus being seen. In two cases of opaque lens, specks were found in the retina ; in one of the single cases, the other eye was disorganized ; in another of the single cases, the other eye had opaque vitreous and myopia. In one case only, arcus senilis was noted.

If all these cases are divided according to their ages in decades, it will be seen that the largest number is between the ages of 55 and 65 years of age. In this decade, too, the largest per centage (43) of retinal changes is found, while, in the decades which precede it, and follow it, there is a falling off in the number of cases, and in the per centage of cases in which retinal changes are found.

Age of Patients.	No.	Retinal Changes.	Per Centage.
30 to 35	4	2	5 per cent.
35 ,, 45	22	5	25 ,,
45 ,, 55	27	5	18 ,,
55 ,, 65	35	15	43 ,,
65 ,, 75	12	3	25 ,,

The very rapid falling off of cases from 65 to 75 years of age, points to death in the previous decade as the cause, and also points to 55 to 65 as the age at which the evil effects of Bright's disease culminate. The very great increase of retinal affection at this period, amply confirms the views of all previous writers that the retinal affection is the more marked, has the general disease advances, and is in most cases a fair indication of the gravity of the general condition of the patient.

The amount of albumen in the urine seems also to point to the same conclusion; increase in the albuminuria being accompanied with an increase in the per centage of retinal changes, as well as the general symptoms of the malady, for in seven cases in which the albumen was *copious*, retinal changes were found in five cases; four times in both eyes; once only in one eye.

Changes found—

Case 1. Diffuse retinitis, both eyes.
„ 2. Specks in both retinæ.
„ 3. „ „
„ 4. Atrophy of the optic nerves.
„ 5. Specks in the left eye only.

It is the experience of all previous observers that the character of the retinal affection is more severe the more copious is the amount of albumen in urine, in which stage it often passes into diffuse retinitis.

In 20 out of 28 cases in which the retina was affected, the changes were of the atrophic kind, and clearly show what is generally stated, that this is the most typical form of retinal affection. In five cases diffuse retinitis was found, and would appear to be the next most typical form of eye affection. In three only were any changes found in the disc. The appearance of hæmorrhage in two cases only may appear to contradict the statements of most previous writers as to its frequent occurrence; but when it is remembered that each of these cases (except one) was only seen once; and when it is also remembered that in most cases a hæmorrhage becomes decolorised and so loses its characters, and is perhaps entirely removed from view in a few days, it will rather excite surprise that any were seen at all.

The state of the bowels seems to bear a very important relation to the eye affection. Ten times were specks found associated with costive bowels, while in five cases only were specks found associated with open bowels; although the bowels were open in 31 cases, against 22 in which they were costive; that is, nearly one in every two with costive bowels had specks, while only one in every six with open bowels had retinal affection.

CONCLUSIONS.—*Source of origin of the degenerative spots.* Whether the small spots have their origin in decolorised blood spots, as supposed by Virchow; or whether they arise from fatty degeneration of fibrinous effusions into the retina; or whether they arise from primary fatty degeneration of the retinal elements, I have no evidence of a conclusive kind to offer. I am inclined to think that all three of these sources of origin play a part in the production of the spots. From the fact that I have myself seen these spots appear in cases under my constant observation, without any previous signs of hæmorrhage or inflammatory action, I am inclined to think, that some of the spots certainly owe their origin to a primary degeneration of the retinal elements. Dr. Gowers writing on this point says:—"The degenerative changes have been ascribed to a tendency to fatty degeneration, which renal disease entails; but this scarcely explains their localisation in the retina. Some facts, however, seem to show that a careful recent microscopic examination of the nerve centres elsewhere, may reveal the occurrence of similar changes in them;" and he draws attention to the researches of Gull and Sutton, who have shown "extensive increase in the supporting tissue of the nerve centres" in chronic Bright's disease.

The Hæmorrhages are no doubt the outcome of three factors.

1. Arterial, or capillary degeneration.
2. High arterial tension.
3. An altered state of the blood.

What is the relation between the retinal and the renal affection? On this point opinions differ very much. Dr. Gowers says, "we know little" on this point. Nettleship says, in his manual of diseases of the eye, only just published, "the nature of the connection is obscure; it is not caused by the cardiac hypertrophy." Dr. Dickinson, in his work on albuminuria says, "the evidence points with sureness to the conclusion that the retinal, like the arterial change, is not associated with any specific renal condition (now admitted by most), but is the issue, direct or indirect, of increased arterial tension, which loss of renal function in all shapes may entail;" but he goes on to state, that in all forms of renal affection a fibrotic process is frequently, if not necessarily, sooner or later developed; and he appears to attribute the rise in arterial tension to this process, thereby making it the common cause of the affection in almost all cases. He agrees, therefore, with most authors, in considering the retinal always to be a late concomitant of renal structural changes.

Leber (writing in Graefe and Saemisch's Handbook of ophthalmology) says, it is "due partly to the altered condition of the blood; the retention of excretory products and hydræmia produced by the loss of albumen, partly to hypertrophy of the left ventricle, and exalted pressure in the arterial system."

Dr. Gowers, though not speaking definitely, would appear to incline to the opinion that in many cases it is only another evidence of the tendency of the tissues to undergo fatty degeneration.

We know that, First,—Retinal changes are found in all forms of kidney affection; not even excepting cases of acute nephritis; and Second,—that purging causes a marked improvement in the retinal affection; Third,—the great increase in the per centage of retinal changes in my own cases, in which the bowels were costive; and Lastly,—that in fourteen cases of young men, whose ages ranged from 11 to 28 years, suffering from temporary functional albuminuria, and in whom there was no reason to suspect structural changes in the kidney, I found retinal changes in five cases, that is, in more than 33 per cent., and of the same character as in the older cases, namely, specks in four cases, and white fibrinous patches in one case. This seems to me fairly conclusive evidence that these changes are chiefly due to an altered state of the blood, in consequence of the kidney not performing its excretory function properly, though, no doubt, cardiac hypertrophy, arterial degeneration and high arterial tension, are accessory factors.

The fact that cardiac hypertrophy, and high arterial tension, often exist without kidney affection, and that in these cases hæmorrhages are not uncommon in the retina, while the typical appearances of retinitis albuminurica are absent, in my opinion, tends to confirm this view.

The fact also that many observers have noticed precisely similar appearances in the retina, which are probably anatomically identical, in other general blood diseases, such as pernicious anæmia, leucocythæmia, and diabetes, to my mind, also points to the state of the blood as the chief cause of this retinal affection.

Dr. Clifford Allbutt, in alluding to the fact that Galezowski and others had recorded appearances identical with retinitis albuminurica in diabetes, says, in his work on the ophthalmoscope, page 253, "Albumen might perhaps have been found in these cases had not the presence of sugar prematurely satisfied the analyst." This statement is, I think, only evidence of the tendency of the best of us to lay down absolute laws, and refuse to accept any data which are not in accord with our own preconceived opinions. The most typical appearances of retinitis albuminurica, glistening white specks around the macula lutea, which I have ever seen, occurred in a case which not long since came under my care at the Eye Hospital in a man about 50 years of age, in whom, on following my invariable rule in these cases of examining the urine for albumen, I found none. This fact was subsequently confirmed by Dr. Saundby. On taking the sp. gr., I was astonished to find it very high, (1.034.) It then occurred to me that sugar might be present, and on examination with Fehling's solution, I obtained evidence of considerable quantities of sugar.

Before leaving this point, I would say that local inflammatory changes also seem to produce degeneration of the fibres of Muller, and all the most typical appearances of retinitis albuminurica in some cases Thus one of the most remarkable cases, in which I have seen retinitis albuminurica imitated, was a case of neuro-retinitis subsiding, with glistening white specks, in which all the general symptoms pointed with tolerable. sureness to the existence of cerebral tumour as the cause. At my advice the man went to the General Hospital, and there died after a few weeks; and, *post-mortem*, a large sarcoma, the size of an orange, was found occupying the upper part of the right cerebral hemisphere. The specimen was shown, at one of the Medical Societies in this town.* Precisely similar cases have been recorded by others. Thus Dr. Hughlings Jackson in Moorfield's Reports, vol. viii., part 3, May, 1876, says—

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* British Medical Journal, 1876, vol. ii., p. 709.

"In some cases I find with optic neuritis (I now speak of cases in which *post-mortem* examination reveals intracranial tumour) changes in the retina, very like, sometimes quite like, those occurring in Bright's disease."

Dr. Herm. Schmitch, S. Wegner,* Brudenell Carter,† and others, have reported similar cases.

Neuritic form.—Dr. Gowers in speaking of the pathological connection of this form of disease with albuminuria says, "In several cases in which I have found neuritis predominating, symptoms of cerebral disturbance were conspicuous." The three cases before alluded to, in which I have seen this affection under treatment, confirm this statement. Further on Dr. Gowers says, "It seems probable that in these cases there is much cerebral disturbance, and that this may determine the occurrence of the excessive change in the optic nerve." On this point I have no evidence to offer, and am inclined to consider Dr. Gowers' suggestion as important. So far as my researches go, medical literature throws little or no light on the cause of the neuritic form of eye affection in Bright's disease; but Dr. Gowers has collected material which tends to show that optic neuritis is more often associated with, and apparently due to, microscopical changes in the brain, than most previous writers have led us to believe.

These facts being admitted, still the fact remains, that in albuminuria a peculiar affection of the retina is often present, probably in about one in three cases; that it is almost peculiar to this affection, and is most common in the granular kidney, of which it is in most cases suggestive; and that it is more common, and more pronounced the more advanced is the kidney affection; and is *usually* an evidence of advanced general disease, and, therefore, probably of degeneration of the kidney. We may grant all this, and still retain the view that it is not absolutely secondary to, and caused by, renal degeneration; indeed, if we admit with many that functional disturbance of the internal organs, especially the liver, may persist for many years, and load the blood with abnormal products which the kidney cannot, even in health, remove, we may then assume that both the eye and the kidney affection, are rather the outcome of a common cause, than that either is caused by structural changes in the other. This view was expressed by Mr. Brudenell Carter, when taking part in the discussion upon Gull and Sutton's paper on capillary fibrosis.

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* Archiv. f. Oph., Bd., xv. Abth. iii., s, 253, 279.

† Diseases of the Eye. p., 426.

As to the question of cure in these cases. All the authors I have consulted admit that a partial, or complete cure is possible; though most seem to consider this exceptional, except in cases occurring during pregnancy. This is I think due to the fact, that most that has been written on this subject has been written by ophthalmic surgeons, who, by reason of their calling, only get those cases in which sight is affected—that is, the most advanced and severe cases. Indeed, judging from my own experience at the Eye Hospital, I should say that most of the cases which apply to ophthalmic institutions are affected with the most advanced form of the atrophic kind in which glistening white spots radiating around the fovea centralis, due to degeneration of Muller's fibres, are present, and occasionally we get a case of diffuse retinitis. From my own experience I should say that spots radiating around the macula lutea, and probaly due to degenerated fibres of

Muller, seldom, if ever, disappear; but the others I have seen to appear and disappear when under constant observation.

Once admitting the possibility of recovery, I think the fact that 28 cases of retinal disease can be collected from the practice of one physician at the General Hospital in twelve months, while only about four cases apply at the Eye Hospital annually out of 11,000 new cases suffering from all kinds of eye affections, is strong presumptive evidence that in the majority of these cases the changes are not progressive but temporary, due to exposure to cold, costive bowels, etc., and pass off again with the other temporary effects of these causes. The fact that I have seen these changes, in the cases of temporary albuminuria above alluded to, points to the same conclusion.

Other Changes.—Possibly in one of the two cases of choroidal atrophy, choroidal hæmorrhage, caused by the Bright's disease, was the cause in the absence of other conditions to account for it. One was due to myopia.

One of the two cases of opacity of the vitreous was, I think, due to Bright's disease.

Fulness of the Veins.—This was seen in seven cases, it might be an evidence of a tendency to hyperæmia and changes in the retina, but is, I think, more probably of a passive kind.

Pulsation—in the veins is, I think, not pathological.

The cases of non-dilatable pupil would seem to indicate vascular degeneration in the iris, often seen in old people, and not specially connected with Bright's disease.

The occurrence of opacity of the lens in 14 cases is interesting to ophthalmic surgeons, especially when it is remembered that spots in the retina were found in two cases, because granular kidney seems to be connected specially with a tendency to suppuration after operation.

I have recently seen embolism of the retinal artery in a young anæmic girl with albuminuria; whether the connection is accidental or important in causation I cannot say, but Voelckers has three times noted this association.

I have recently seen a case of neuro-retinitis with arterial degeneration and thickening, or perivascular exudation and degeneration, similar to that seen by Dr. Gowers; but the case was not my own, and I do not know if it was associated with albuminuria. I have not seen this condition in any of the 100 cases reported on.

Arterial Contraction—without retinal disease, associated with hard pulse, and high arterial tension. I cannot confirm the statement of Dr. Gowers, that this is common. Only twice I think some slight contraction existed, but I did not feel sure that it was abnormal even in these cases.

I have recently had a case of diffuse hæmorrhage into the retina; the hæmorrhages have cleared; the retina looks quite healthy, but vision is imperfect, and the arteries have now contracted very much since I first saw the case. Here, though no sign of disease is visible, I think we may safely infer that the retina is damaged, and that the contraction is a consequence of degeneration in the retina, as it was not noticeable in the early stage of this case, and contraction of the retinal arteries from this cause is common.

I have looked over the cases on which Dr. Gowers bases his statement, and I find that in two cases only out of 10 in which contraction was noted, the retina was absolutely free from disease; hæmorrhages or patches being present in six cases; in two cases the pulse was soft, and the retinal artery not contracted.

I think, therefore, we cannot at present consider this point to be proved. I cannot confirm it by observation, though I have tried to do so; moreover, contraction, if local, is of no significance, and as we have seen in nearly all Dr. Gowers' cases a local cause was present.

A CASE OF EXANTHEMATIC CIRRHOSIS OF THE OVARY:

RESULTING IN MENSTRUAL EPILEPSY, AND CURED BY OOPHORECTOMY.

BY LAWSON TAIT, F.R.C.S.

It has long been known that in certain zymotic diseases, especially in mumps and scarlet fever, male children are apt to suffer from orchitis, and I remember seeing a statement somewhere that such inflammation of the testicle was likely to be followed by atrophy and loss of its function. I cannot, however, verify my recollection by producing the reference.

In 1870 and 1871, and still more in 1874, my attention was drawn to the occurrence of acute pelvic peritonitis in women after attacks of scarlet fever and small-pox, these attacks leaving indications which shewed clearly that the mischief began in the ovaries. Accident enabled me to trace the subsequent history of two such cases, and I found that in both the menstruation became greatly diminished in amount, that it was accompanied by severe dysmenorrhœal symptoms, and that in one of the cases it entirely disappeared. From these cases, I began to suspect that the attacks were primarily due to inflammation of the ovary, and that this had some kind of relation to the zymotic diseases which preceded it.

The terrible outbreak of small-pox which this town suffered from between 1872 and 1874, gave me the opportunity of following out this line of research, and in the second edition of my Hasting's Essay, on the Pathology and Treatment of Diseases of the Ovary, I sum up my conclusions upon this subject, and, up to the present time, I have seen no reason to modify them :—

"The occurrence of acute ovaritis in certain of the exanthemata, or as a sequela to them, has never yet, so far as I know, been placed in sufficient prominence. I have already alluded to it, but I wish here to record further experience gained from an epidemic of small-pox of considerable severity which existed in Birmingham from 1872 to 1874. Though practising exclusively as a gynæcologist, it is somewhat curious that I was called in consultation to four cases as instances of pelvic ailment which ultimately proved to be cases of small-pox. One of these gave the clinical features of the exanthematic ovaritis with great clearness. She had been married four years, and had been confined twice. She was pregnant for the third time in September, 1873, when she was seized with a sudden rigor, followed by severe pyrexial symptoms. These rapidly became localized in the pelvis, the patient complaining of excruciating pain in each iliac fossa. I saw her on the fourth day of her illness, and found her suffering from double acute ovaritis and threatening abortion. She aborted on the fifth day, and then showed a papular eruption of small-pox, which rapidly became confluent. She made a very protracted recovery, and has never menstruated since. The fundus uteri is fixed down on the sacrum, and both ovaries are enlarged and tender, the left being firmly fixed alongside the uterus.

In hospital practice I met with a large number of cases of which the following is a good example: H. A., aged twenty-two, began to menstruate a short time after she was fourteen, and was quite regular till August, 1872. At that time she had an attack of small-pox, which she says was not severe, and which has not left any deep marks. Up till the time of that illness she was strong and robust, and never knew what illness was. During the attack she had a very profuse menstruation at an irregular time, and this was followed by severe abdominal pain which was treated by hot fomentations. She did not get rid of this pain entirely for some months, and since then she has menstruated at long intervals, the discharge being very scant, and accompanied with great pain. She is now very anæmic, though still stout, is short of breath, and has a loud systolic hæmic murmur at the base. The ovaries are not to be felt at all, and therefore it is probable that they have become atrophied. She obtained considerable relief from small doses of iron, combined with chlorate of potash. I have no doubt that she had an attack of acute exanthematic ovaritis, which has led to atrophy of the organs.

I have repeatedly seen, on post-mortem examination, atrophy of the ovaries in women who had by no means reached the usual climacteric period of life, but had prematurely ceased to menstruate. In one case only could I get a history of the menstrual life of a patient, which was to the effect that she had not begun to menstruate till twenty years of age, and had ceased before she was thirty; and about that time she had an illness which probably was scarlet fever. The ovaries were small and shrivelled, and a stained section showed that nucleated and banded fibres constituted the bulk of the glands. Here and there, in small loculi whence the bands seemed to radiate, a small group of cells served to indicate the site of a Graafian follicle, but no perfect follicles could be found. This extreme instance was the result probably of two factors, insufficient development and exanthematic atrophy. I think that in such cases it is likely that future observation will establish the existence of an interstitial oophoritis, distinct in character and perhaps in origin from the ordinary acute inflammation of the peritoneal covering of the ovary, to which latter we might more appropriately give the name of peri-oophoritis. The results in the two classes seem to be different; for in the second, menstruation does not seem to be suppressed, but, on the contrary, it is sometimes excessive; whilst as a result of the supposed interstitial form we have ovarian atrophy and amenorrhœa of an incurable form; and when it occurs in puerperal women superinvolution of the uterus."

The views which I have expressed in these sentences have now been fully confirmed by my own experience and further investigations, and I have no doubt now that there is a special form of oophoritis associated with certain exanthemata, more particularly scarlet fever and small-pox, and that in its results it differs altogether from the form of ovarian inflammation to which I prefer to give the name of peri-oophoritis.

The most important result of this specific form of ovarian inflammation is that it leads to a cirrhosis of the ovary which may or may not be characterised by general atrophy. It always is, however, indicated, as I have said, by atrophy of the true gland structure and the excess of the fibrous element. How this may be brought about is not yet clear; but, as I shall show you immediately, the facts are fully established, and my own explanation is that it is due to the absorption of the gland elements after the inflammation, whilst the fibrous elements are left, just as is said to occur in the contracted kidney, and in other instances of cirrhosis.*

Whatever be the process there is no doubt that it is sometimes associated with atrophy of the uterus, resulting in what is known, and was first described by Simpson, as superinvolution of the uterus. At page 119 of my book on "Diseases of Women," I hazard the following explanation of this condition :—

"Of superinvolution of the uterus, it must first be said that it is an extremely rare affection, and that all we know about it is due to Simpson. It is a condition perfectly analogous in its details to arrest of development of the uterus, with the difference in history that the superinvolved uterus has at one time been so large as to be pregnant. How the normal involution is carried on to hyperercheesis we do not know; and, as far as I can discover, we have only one description of the post-mortem appearance of a uterus so affected, that given originally by Simpson. The patient was twenty years of age, and had never menstruated after her first delivery; but no history is given of any febrile illness to which might have been attributed the abnormal absorption of the uterine substance. After death the uterus was only an inch and a half long, and its walls were less than half their normal thickness, their tissue appearing dense and fibrous. The ovaries were also much atrophied, and their dense fibrous tissue presented no appearance of Graafian vesicles. In

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*My friend Dr. Saundby, who has given much care and personal work to this subject, tells me that it is still a *questio vexata* of pathology how far the connective tissue of cirrhosed organs is derived from retrogressive transformation of the pre-existent more highly organised elements, *e.g.* glandular epithelium, &c., into spindle-cells and fibres, and how much is due to cell migration from the blood vessels and proliferation of the connective tissue corpuscles. It is probable that the first of these processes plays a more important part than has been assigned to it in the doctrines which have found most favour during the past few years.

this case it is of course doubtful whether the process was truly one of ovarian atrophy, followed by atrophy of the uterus in obedience to the usual law that all useless organs tend to disappear. Several cases of what I have had reason to believe was true superinvolution of the uterus have come under my care, but in every one there has been some febrile illness, generally of a zymotic character, which occurred at, or soon after, a labour or miscarriage; and my impression is that, of all the cases, those in which a miscarriage was the origin of the trouble were in the majority. In fact, I am strongly disposed to regard superinvolution as a result of an atrophic ovaritis occurring at the time when involution is going on. Thus in a case which I published in the London Obstetrical Journal for May, 1873, and which certainly was the most pronounced case of superinvolution I have ever seen, the patient had had scarlet fever during the first week of her convalescence from her second labour. She came under my care in 1871, seven years after the fever, and has remained under observation ever since. When I first saw her, the uterus was perfectly infantile, the vaginal portion of the cervix being represented only by a pimple. Her menstrual periods had disappeared, and were replaced by sevre epileptiform seizures, as will be found detailed in the Journal. I succeeded in getting menstruation restored, and the uterus increased in size by the use of galvanic pessaries; and as her periods became re-established, the epilepsy disappeared. But when I discontinued the use of the pessary, the menstruation slowly disappeared and the fits came gradually back, and this therapeutical experiment has been several times repeated with uniform results; and that the fits are epileptic is made certain by the severe injuries the poor woman inflicts upon herself during the attacks. Looking back on this case and others, and aided by the evidence of other facts referred to under the head of exanthematic ovaritis, I am led to believe that superinvolution is explained by the occurrence of ovaritis, followed by atrophy, during the puerperal month; and that the uterus merely follows in the steps of the ovary, carrying the process further, however, because it had been already in action, and stopping it only when perhaps there was no more muscular tissue left to absorb.* I do not suppose that the exciting ovaritis need necessarily be exanthematic; but peri-oophoritis, or inflammatory action affecting the covering of the ovary, does not seem to affect menstruation, it rather inclines to induce sterility only. These views would explain many facts which are otherwise irreconcilable, and, what is most of all remarkable, the rarity of superinvolution. First of all, exanthematic or other interstitial ovaritis such as leads to ovarian atrophy and is not fatal, is very rare in puerperal women, the great majority of such cases ending in death. The few who recover are likely to suffer from superinvolution. Again, the numbers of non-puerperal women who suffer from ovarian atrophy, the result of inflammation, do not at the same time have atrophy of the uterus, because when the ovarian process began the uterus was not already undergoing involution. This explanation is quite in accordance with the history of and the appearances in Simpson's case, and also in harmony with the general principles of ovarian physiology. Its practical bearing is, that though in such cases we may get temporary relief from the galvanic stem, that relief will cease with the use of the instrument, or when, as sometimes happens, its stimulus becomes insufficient."

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* It is not to be supposed for a moment, however, that the uterus ever can be so absorbed as to disappear altogether, even though it may be so thin as that a sound can be passed through it, as in the case recorded in the British Medical Journal for 1872, p. 408, by Mr. Whitehead, of Manchester. At p. 465 of the same volume, I offered the more feasible explanation now given, and to which I shall allude more at length under the head of metro-peritoneal fistula.

The case now referred to is one of so much interest and importance that at the risk of being tedious I shall give its history fully from my first acquaintance with the patient. The former part of the case I take from the Obstetrical Journal of May, 1873.

E. E., aged thirty-five, came under my care in November, 1871, at the hospital. She had been married twelve years, and had two children, the last of which was born seven years ago. She had scarlet fever after this labour, and her periods were long in re-appearing. When they did come they were scanty and very painful, and occurred irregularly at intervals of from five weeks to three months, lasting only one day, or two at most. About four years previous to her first visit, slight attacks of an epileptiform nature occurred at each period—almost imperceptible at first, but getting gradually worse as the periods got more irregular and scantier. For some months previous to applying at the hospital, she had two or three severe fits at each period, each fit leaving her insensible for some hours, and often with severe injuries. On November 5th, she had had a period and a very severe fit; 9th, ordered five grain doses of the bromide of potassium thrice daily, and an aloes and iron pill twice a week. Examined on the 16th, and the uterus found quite infantile; ovaries normal. The uterus was so small that I failed to get anything into its cavity. On the 30th, I doubled the dose of the bromide. December 7th, menstruated for one day and had increased flux, and no fit. Menstruated January 4th and 5th, with slightly increased amount, and one severe fit on second day. Had a severe fit on 22nd without any menstrual flow; the first time this has happened. Menstruated February 1st and 2nd; no fit. March 11th and 12th, menstruation without fit, but a severe seizure occurred almost immediately after the flux ceased. On the 18th, Mr. Jordan kindly put her under chloroform for me, and I got a small tangle tent into the uterus; I at the same time discovered that there was considerable anteflexion. 25th, past in No. 8 tangle tent; and on the 29th I got No. 8 galvanic stem in. April 5th, got in No. 12 stem; 7th, 8th, and 9th, menstruated more profusely than she has done for years, and without a fit, though one occurred on the 16th. She still wears the stem, and menstruates regularly and profusely, but has no fits.

From this point I continue the case from the Hospital record—

On April 26, 1873, I introduced No 16 galvanic stem, the largest I have ever used, and from May 3rd to 7th she had a period more profuse than she had ever had since her confinement. On June 4th she again menstruated for four days, again in July, and also in August, and September, during which time she wore the large stem, and had not a single fit.

The stem was removed at the end of September, having been worn five months with most satisfactory results. In November she menstruated for one day only, and in December there was no appearance of it at all, but a fit occurred at the time it was expected. During the whole of this time she was taking sixty grains of the bromide each day. The fits recurred at each period when menstruation ought to have appeared, so that on May 16th we had recourse again to the galvanic stem. She menstruated from the 20th to the 24th without any fit, and she wore the stem with only very occasional fits, and with perfect and regular recurrency of menstruation, till November, when the stem was removed. By the following March, 1874, the fits had re-appeared, and the menstruation was again in abeyance, and just as it disappeared, the fits were re-established.

During 1875 we saw her only cccasionally, as it was only when she was worse than usual that she came for the bromide mixture. It was quite clear then that her mental qualities were becoming dulled, and she was rapidly taking on the characteristic face of an epileptic imbecile. During 1876 another effort to re-establish the periods by means of the galvanic stems was made, but with results less satisfactory than those made in previous years. On February 5th, 1877, I was asked to see her at her own house, and found her in a condition of epileptic mania. I advised her removal to an asylum, but her husband and mother declined to act upon my suggestion, in spite of it being quite evident to them that the injuries she inflicted upon herself during the fits were of so serious a character as to endanger her life, and from her occasional violence during the delirums, it was quite possible she might become a homicide. Every month the fits returned with increasing severity, and the attacks of mania fastened themselves almost wholly upon the week, during which a slight loss, lasting for a few hours, indicated that her menstruation should have occurred then. The bromide of potash was pushed to as much as two hundred grains a day without the slightest effect, and other drugs were tried equally without avail.

In July, 1879, her condition was so dreadful that her friends at last determined to send her to an asylum, and I saw her on the 28th. She was almost completely fatuous, her memory was almost gone, the fits seemed to miss only one week in four, the attacks of mania were irregular and continued for varying periods, and menstruation occurred at irregular times. Yet on the whole, it was said by her mother, that, she was at her worst pretty regularly one week out of the four.

It occurred to me, that if my view were correct, that this was a case of menstrual epilepsy really depending upon exanthematic cirrhosis of the ovary, removal of the ovaries, an operation of very ancient date, and which I performed for the first time in this country in 1872, held out some prospect of curing this unhappy woman. At least it could not make her worse than she was, for even if she died under it, the release would be a grateful one to all concerned. Her relations, therefore, gave a ready consent to my proposal when I laid it—and the reasoning upon which I based it—before them.

I, therefore, admitted the patient to the Women's hospital, and, with the concurrence of my colleagues, I removed the ovaries on August 11th.

This operation, according to my experience one of the most successful operations in surgery, and likely to prove of infinite service to suffering women, was first performed in 1872 by Prof. Hegar, of Leipsic—and he first published his proposal. Within a very few days after Professor Hegar's operation it was performed here by myself, some months before Professor Hegar's account of his case reached this country. Dr. Battey, whose name it is proposed to fix upon this operation, did not operate till after Hegar and myself, and his publication was also subsequent to both of ours.

If it is anybody's operation it is Hegar's, certainly not Battey's. But as there are many obvious objections to fixing people's names to operations, and as it is a custom which in every instance falls soon into disuse, I prefer the name of oophorectomy, for this operation, in order conveniently to distinguish it from ovariotomy, which is now kept for the purpose of indicating the operation for the removal of an ovarian tumour.

The operation in the case of E. E. was made somewhat difficult by her being extremely fat. I was assisted by my colleague, Dr. Savage, and there were present Drs. Hickinbotham, Annie Barker, R. Edgington, Agnes M'Laren, and Mr. J. Raffles Harmar; and the only point worth noticing, is that I used the Staffordshire knot for the pedicles; a plan I introduced some months ago, and which has so far had a uniformly successful result. A somewhat profuse catamenial flow set in on the third day after the operation, and lasted for three days, but without the slightest appearance of a fit. This pseudo-menstruation is very common after ovarian operations, and often recurs for two or three months after removal of both ovaries.

The stitches were removed on the 18th, and she sat up on the 23rd of August, twelve days after the operation.

I went away for my holiday and did not return till the 29th of September, when I found her an altogether different woman. She had had no fits, no more menstruation, was bright and cheerful in her face, her memory returning, and she had altogether lost the dull, heavy epileptic look which she had before.

I last saw her on October 13th, when she was about to go to her home in Peterborough, and she and her friends were satisfied as to her perfect recovery, and were as grateful as people could be for the improvement in the patient's condition.

One question of course remains: Will the improvement be permanent? I do not know. It seems almost too much to hope for, but I really think it will be. The description of the ovaries by my friend Mr. Alban Doran, completely justifies my view of the pathology of the case, and my treatment is but a logical conclusion from that view. After such an operation one would expect that the fits would probably continue for a few months, and gradually disappear. But here they have disappeared at a blow and, after nearly three months absence, I think they may be expected to have finally disappeared.

The ovaries removed were not much smaller than normal ovaries, but they were fissured in a most remarkable manner, so as to resemble in miniature the kidneys of an ox, or the convolutions of the human brain. I sent one up to the College of Surgeons' Museum, and I quote from Mr. Doran's report upon it, as follows:—

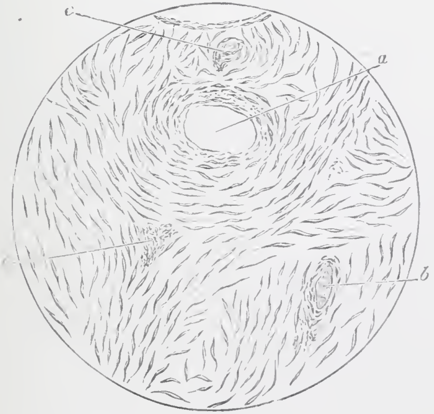
"There are no signs of 'alveolar degeneration;' but the elongated cells of the stroma are larger than in normal ovaries, and there are few vessels, the hypertrophy of those that remain, and the bundles of fibrous tissue, point to a cirrhotic change following the exanthematic oophoritis. There were no morbid cysts, nor extravasation of blood ; no pathological breaking down. There were two Graafian vesicles, each about $\frac{1}{20}$ of an inch in diameter, both close to the surface ; the periphery of the ovary being slightly denser than the deeper stroma, to the depth of ⅛ of an inch. Near the inner extremity of the ovary is a menstrual corpus luteum which makes a distinct bulge on the surface."

I cannot conclude the notes of this case without restating my belief that in this operation of oophorectomy we have the means of alleviating an enormous amount of suffering of an otherwise incurable kind.

With the precautions involved in innumerable details, which we now adopt, and in experienced hands, my belief

EXTERNAL SURFACE OF OVARY.

SECTION OF OVARY.



SECTION OF OVARY, X 400.

Shewing abundance of connective tissue scantily supplied with vessels. (*a*). A normal Arteriole. (*b*). Small vessel occluded. (*cc*). Debris, probably site of vessels occluded by pressure of new connective tissue.

is that it is an operation comparatively free from risk. I have now performed it fifteen times with three deaths, all three fatal cases, death having occurred, not from the operation, but from its having been too long delayed in cases of bleeding myomata—delayed, in fact, till the patients were dying from want of blood.

SOME MEDICAL APPLICATIONS OF THE SPECTROSCOPE.

BY CHAS. A. MAC MUNN, B.A., M.D., (DUBLIN), WOLVERHAMPTON.

I PROPOSE to discuss in this short paper some of the applications of the spectroscope to medicine. To those who have not read anything about the spectroscope, some of the terms which are used will be unintelligible; but as an account of this instrument and its construction would take up too much space, and as such matter would be out of place in a medical periodical, I must refer them to the works of Roscoe,[*] Schellen,[†] Proctor,[‡] or Lockyer,[‖] for this information.

Instruments.—The instruments which I have used in my work are a one-prism chemical spectroscope, and a Sorby-Browning micro-spectroscope. Each has special advantages. Thus, when we have to examine different strata of fluid in a test-tube the former is preferable, while the latter is indispensable for examining small quantities of material, or when we have to examine the spectrum of a solid with refracted light. To enable absorption spectra to be mapped various methods have been adopted; thus chemical spectroscopes are sometimes provided with a third tube, carrying a photographed millimetre scale, the image of which is reflected into the observing telescope, and is seen to divide the spectrum into a certain number of parts. Or the observing telescope is provided with an arm carrying a nonius, which moves over a graduated arc of a circle, and the eye-piece of the telescope is furnished with cross-wires, so that the readings can be taken in angular measurements. A much simpler method is that, which I invented in 1876, namely, the camera-lucida method of mapping. It will be found described in the Dublin Journal of Medical Science, for June, 1877. By means of this method maps can be quickly constructed, and errors of observation are reduced to a minimum.

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[*] "Lectures on Spectrum Analysis," 3rd edition, 1873.

[†] "Spectrum Analysis." 1872.

[‡] "The Spectroscope and its Work."

[‖] "The Spectroscope and its Applications," (Nature Series), 1873.

Up to a late period the micro-spectroscope was provided with the bright-point micrometer; an apparatus which monopolised much time, and led to erroneous results, as the bright point suffered from parallax; but thanks to Mr. Browning, I had fitted to my micro-spectroscope a photographed scale, by means of which readings can be taken at once, and maps made from them by means of a scale of equal parts.

Wave-Lengths.—Since the scales of no two observers are alike, owing to instrumental differences, all readings should be reduced to wave-lengths. This is not a difficult matter, if the method of *graphical interpolation* be adopted. The latter is described in Watts' "Index of Spectra," which is sold by Mr. Browning, of 63, Strand, London.

Cells and Tubes.—The fluids whose spectra have to be examined with the chemical spectroscope are put into test-tubes, the source of light being a paraffin lamp, or preferably a gas flame, with its edge towards the slit. Sorby's cells are generally used with the micro-spectroscope, and are made from short pieces of glass tubing evenly cut and polished, fastened to glass plates by means of Canada balsam, or other cement; but they have a serious disadvantage in practice, since the cement connecting the cell to the plate is soluble in alcohol, ether, and chloroform, solvents which are being constantly used in physiological work. I now use small flat-bottomed tubes, or short test-tubes, let into slabs of wood; these cells are easily cleaned, they are not affected by reagents, and all surplus light is stopped by the wood; the only rays which are transmitted having to come up through the bottom of the tube or cell. Watch-glasses are also very useful; and for comparison tubes, the small flat tubes which are used for bouquet holders will be found useful, since they permit of two depths of fluid being examined.

Advantage of using Artificial Light.—In studying absorption spectra, artificial light is to be preferred, since solar light gives Fraunhofer's lines; and there is a danger of confusing the latter lines with the absorption bands of the fluid under examination. Again, fluids which give bands in the red end of the spectrum are best studied by means of artificial light; on the other hand, those which give bands in the violet end, are studied to best advantage by means of day-light; and if the band be very far over in the violet, it is sometimes necessary to use direct sun-light, especially if the fluid be turbid.

Physiological Spectra.—Bright-line spectra need not occupy our attention, since their study is but of slight importance from a medical point of view, although, by means of the spectroscope, an analysis may be made of calculi, of the ash of tumours, of the residue of a pathological fluid, &c.; or poisons which escape rougher analysis, may be detected. The absorption spectra, which I have more especially studied, are those of blood, bile, and urine; and although very much yet remains to be done, I believe the spectroscope has already done much towards clearing up some obscure points in animal chemistry; having corrected erroneous ideas, and suggested new points of departure in this line of investigation.

It is necessary, however, to remember that identity of spectrum does not ensure chemical identity, since according to the researches of Herr Vogel and Herr Kundt, two bodies may give a similar spectrum, and yet have an entirely different chemical composition; what ensures chemical identity is the fact that the two bodies not only give the same absorption spectrum, *but that the bands in their respective spectra behave similarly when reagents are added to them.* Again, we must remember that it is possible that certain absorption bands may not be due to one single substance present in solution, but to two or three; and in such cases we must bring a knowledge of chemistry to bear upon the subject under investigation, by trying the effect of various solvents and reagents before coming to a final conclusion. Recent researches have shown of what importance the wave-length method is, in enabling us to infer chemical identity, as Sorby has found that there is a constant ratio between the wave-lengths of the centres of bands in the spectra of bodies having the same, or almost the same chemical composition. But these considerations need not deter anyone, from their seeming difficulty, in taking up this line of research, as his time will be fully occupied for a long period in studying those spectra about which there is no doubt.

The Blood Bands.—Since the discovery of the absorption bands of blood, by Hoppe,* and its confirmation, by

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* Hoppe—Schmidt's Jahrbuch, d. ges., Med. cxiv. 3, 1862.

Prof. Stokes,[*] of Cambridge, our knowledge of respiration has increased rapidly; and if the spectroscope had done nothing more than this, its value should be appreciated; but it has not only shown why arterial differs from venous blood in colour, but it also enables us to understand how certain agents of a poisonous nature put an end to animal life.

A solution of blood, if it be diluted sufficiently, when examined with the spectroscope, gives two bands between Fraunhofer's lines, D and E; the band next D is better defined than that next E, and, on dilution, is the last to disappear. If more blood be added to the solution these bands coalesce, the red and green on each side (of the compound band) alone being transmitted, and by adding more blood the red alone is seen, which also can be made to disappear by a further addition of blood.

The two bands of blood are imitated in the spectrum of carmine, and in that of turacine,[†] but the reduction test to be described further on distinguishes them.

Arterial blood is characterised by giving the spectrum described above, and venous blood was said to yield it; but an exception occurs to this rule in venous blood after death. Hæmoglobin crystals separated from blood, when exposed to the air, give the same spectrum as arterial blood, so that the spectroscope has confirmed the fact that hæmoglobin is the colouring matter of blood, not hæmatin, as some believed up to a recent date.

By means of the micro-spectroscope we can detect as little as the $\frac{1}{1000}$ of a grain of hæmoglobin; accordingly the spectroscopic is the most delicate test for blood in medico-legal cases.

Reduced Hæmoglobin.—By adding to a solution of hæmoglobin, or to a solution of blood, certain reagents which have a greater affinity for oxygen than hæmoglobin has, the colour of the solution changes, and coincidently with the change in colour, we also notice a change in the spectrum; the two bands of oxy-hæmoglobin are replaced by a single broad band, whose darkest part occupies what was before the space between the blood bands. The reagents which are generally used to demonstrate this fact, are sulphide of ammonium, or Stokes' fluid, the latter being an ammoniacal solution of ferrous sulphate, to which enough tartaric acid is added to prevent precipitation by alkalis. When after the addition of the latter, and when the blood has assumed a purplish colour, and has given the spectrum of reduced or deoxidized hæmoglobin, we shake the fluid, its purplish colour again becomes scarlet, and the blood bands reappear. Left to itself it again becomes purple, and again gives the spectrum of reduced hæmoglobin. These changes can be repeated with the same specimen of blood a great number of times.

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[*] Stokes—Proc. Roy. Soc., xiii, 353.

[†] From the feathers of the Cape Lory.

It is hardly necessary to say that the spectroscope has thus shown wherein lies the breathing-power of the red blood-corpuscle, as every book on physiology now reiterates this fact.

Spectrum of Venous Blood after Death.—By the examination of the blood from the heart and venæ cavæ of a still-born foetus, I was led to the conclusion that venous blood gives the spectrum of reduced hæmoglobin after death,* but while waiting for additional proofs of the truth of my discovery, I was anticipated in its publication by Hofmann and Koselanski, who had about the same time made the same discovery,†

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* Brit. Med. Journal, Feb. 1st, 1879.

† Vierteljahrschrift für Gerich. Med., xxv, xxvi, Lond. Med. Record, Nov., 1878, p. 461.

It would seem from a number of experiments which I have made upon guinea-pigs and rabbits, that venous blood is reduced as soon as the animal has ceased to live, and in some cases the blood, in the left side of the heart, and in the aorta, is also reduced within a certain time after the death of the animal. It would at first sight appear that—since solutions of blood, when they begin to undergo putrefaction turn purplish and exhibit the band of reduced hæmoglobin,—this reduction of the hæmoglobin is due to decomposition ; but this hypothesis is untenable, as the band of reduced hæmoglobin appears *at once after death.* The true explanation is, that the hæmoglobin yields up its oxygen to the tissues during the act of dying. The statement—contained in most treatises on physiology—that venous blood always yields the spectrum of oxy-hæmoglobin must now be considerably modified, as such is not true for venous blood after death.

Spectrum of the Blood after Death from Asphyxia.—At one time it was stated that the blood of asphyxiated animals gives the spectrum of reduced hæmoglobin, but Stroganoff [*] published the result of certain experiments, which showed that "at the last moment of the last cardiac contraction" the blood still yielded the spectrum of oxygenated hæmoglobin. I find however that immediately after death, *i.e.*, as soon as one can possibly remove the blood from the body, the band of reduced hæmoglobin is found in the *arterial* blood, both in the left side of the heart and in the aorta.

Spectrum of the Blood in Death from the prolonged inhalation of Nitrous Oxide.—In guinea-pigs made to inhale nitrous oxide until the cessation of life, we find the same condition, that is, reduced hæmoglobin in the arterial blood.* At the moment when the ear of the animal changes colour, if it has been placed between the slit of the spectroscope and the source of light, the oxy-hæmoglobin bands are seen to be replaced by that of reduced hæmoglobin. Consequently the spectroscope has confirmed the theory which is now generally received, that nitrous oxide stops the supply of oxygen to the hæmoglobin of the blood,†

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[*] Pfluger's Archiv, Band xii.

Action of Carbonic Oxide on Hæmoglobin.—Solutions of blood, treated by passing carbonic oxide gas through them, present a more scarlet colour, and less opalescence than normal blood, and on examination with the spectroscope, two bands are seen, which at first sight appear very like those of oxy-hæmoglobin, but on closer examination we find that they are nearer the violet end of the spectrum, and that they are not influenced by deoxidizing agents, the oxygen has been displaced by the carbonic oxide, volume for volume, and the latter has entered into a more intimate combination with the hæmoglobin than the former.

Carbonic oxide is the cause of death in poisoning by the fumes of smouldering charcoal, and also in poisoning by coal-gas inhalation. The truth of the latter statement can be easily demonstrated; for if a mouse be put under a bell jar, and coal-gas passed into the latter, the mouse soon ceases to live, and its blood gives the spectrum described above. If oxygen be passed into blood thus treated, for some time, the spectrum of reduced haemoglobin can be made to appear by the subsequent addition of reducing agents; or if the blood be put beneath the receiver of an air pump, the carbonic oxide can be removed by *repeated* pumpings; accordingly the best treatment for cases of poisoning by charcoal fumes is vigorous artificial respiration, or the inhalation of oxygen. This is no idle dream of an enthusiast. The treatment suggested by the spectroscope, has actually been tried, and with success, by Professor Baeblich and others.

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* Dub. Journ. Med. Science, Sep., 1879.

† "Wood's Therapeutics," 1876.

Action of Sulphuretted Hydrogen on Blood.—Solutions of hæmoglobin or of blood, treated with sulphuretted hydrogen, yield a spectrum which is characterised by having a band in red, which belongs to a new compound, and which has been called sulphaemoglobin. Sulphide of ammonium, added in excess to solutions of blood, causes a like transformation in hæmoglobin, especially if the blood be old and undergoing decomposition. I believe that sulphæmoglobin is closely allied to methæmoglobin, but is produced by a greater amount of chemical action than is required to produce the latter.

Reduced hæmoglobin is not affected by sulphuretted hydrogen, hence water containing sulphuretted hydrogen is not poisonous, while inhalation of the gas, or its injection into the arteries is attended with great risk.*

Action of Cyanides and Other Reagents.—Hydroyanic acid and cyanide of potasium enter into a combination with hæmoglobin, which possesses a peculiar spectrum, but is not of very great medical interest, as the blood of animals poisoned with the cyanides does not give a peculiar spectrum.

The action of the nitrites has been investigated by Professor Gamgee. He noticed the chocolate colour which the blood of animals poisoned with the nitrites exhibited, and found that the changed colour was accompanied by a peculiar spectrum. From experiments which I have made with the nitrites, I have come to the conclusion, that the body which gives this spectrum is very closely related to, if not identical with, methæmoglobin; and an additional proof was afforded by the discovery of a fourth band nearer the violet, which is identical in position with a fourth band found in solutions of methæmoglobin from some pathological fluids. Moreover, solutions of each body respectively give the spectrum of reduced hæmoglobin when reducing agents are added to them.

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* Preyer.

Hæmatin: Acid and Alkaline.—Hæmoglobin is split up by the action of acids, and alkalis and alcohol, into hæmatin, and an albuminious body *globin.* According to Preyer, the body called acid hæmatin, which he calls hæmatoin, differs from alkaline hæmatin in being free from iron,* but Thudichum and others deny this. If one can draw conclusions from the spectroscope alone, there would appear to be but little difference in these compounds, since the acid hæmatin produced by the action of certain acids, *e.g.*, lactic acid, salicylic acid, etc., can be made to yield in etherial solutions the same spectrum as solutions of alkaline hæmatin, when reducing agents are added.

The spectrum of acid hæmatin can be studied with great ease, by acting on blood with acetic acid, and shaking with ether, it shows four bands.

By acting on blood, with carbonate of potash and alchol, we get a solution showing one band, covering Fraunhofer's line D, and by adding to this a reducing agent a spectrum is seen, which is characterised by having two bands nearer the violet than those of oxy-hæmoglobin; these are the bands of reduced hæmatin.

The acid hæmatin spectrum figured in some books on physiological chemistry, and on the spectroscope is really that of methæmoglobin, and the directions given for procuring it are entirely wrong.

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* Die Blutkrystalle, Jena, 1871.

Hæmatin in Ovarian Cysts.—By the kindness of Mr. Lawson Tait I have examined several ovarian and parovarian fluids spectroscopically. I expected to find methæmoglobin, but in these cases, where the blood present was not due to accidental admixture at the time of operation, it was found to be in the condition of hæmatin; the absorption bands being identical in position with the bands of acid hæmatin, and yielding those of reduced hæmatin, on the addition of ammonium sulphide. I may here remark that the production of reduced hæmatin was not due to the reducing agent, as I was particularly careful in choosing pure chemicals, whose action was simultaneously tested upon solutions of blood taken from my finger. A valuable corroborative proof of the accuracy of these observations was afforded by an experiment, which one specimen performed upon itself, unexpectedly, viz., after standing for 24 hours the re-action became exceedingly alkaline, the colour became lighter, and *the spectrum had changed to that of alkaline hæmatin.* This is the first instance which I have met with, where a pathological fluid has given the spectrum of acid hæmatin. The urine in some cases of hæmoglobinuria has been said to yield it, but I believe the spectrum of methæmoglobin was mistaken for that of acid hæmatin in those cases, as the band of urobilin seemed, when superimposed upon that of methæmoglobin, to have been the fourth band of acid hæmatin.

The spectroscope will, therefore, afford valuable corroborative evidence in the diagnosis of ovarian and parovarian fluids. I would here call attention to the valuelessness of the band of cysto-lutein, as a means of diagnosis, since I have found the latter in different serous fluids, *e.g.*, ascitic, pleuritic, and in the fluid removed from œdematous legs by means of Southey's tubes. It can be seen to most advantage in blood-serum after appropriate removal of the blood-colouring-matter.

Methæmoglobin.—After blood has been exposed to the air for some time, or if it has been acted on by weak acids, or by permanganate of potassium in solution, a body giving a different spectrum from that of oxyhæmoglobin is formed ; it is characterized by having a band in red, and two or sometimes three other bands, two of which occur nearly in the position of those of blood, and the third between the latter and the violet part of the spectrum. Most pathological fluids into which blood has been effused give the spectrum of methæmoglobin. When the urine of hæmaturia is examined with the spectroscope, we, as a general rule, can tell (if the urine be examined soon after its removal from the bladder) whether the hæmorrhage has been renal or vesical, as in the former case methæmoglobin is present, and in the latter oxyhæmoglobin. When reducing agents (*e.g.*, ammonium sulphide) are added to fluids containing methæmoglobin, the band in red disappears, and the other two or three, as the case may be, are replaced by that of reduced hæmoglobin. This test serves to distinguish methæmoglobin from acid hæmatin, and also from sulphæmoglobin, for in fluids containing the last body, reducing agents do not cause the disappearance of the absorption band in red.

The Spectrum of Normal Healthy Urine.—In spite of what may be said to the contrary, I can assert from an examination of many hundred specimens of healthy urine, that there is a body normally and always present in the urine of health, which, if the latter be sufficiently acid, shows an absorption band between green and blue at the solar line F. From the behaviour of this band with acids and with alkalies, we may infer that the body giving it is identical with what Jaffé calls *urobilin*; and it really matters but little whether the substance which he got from bile and called by this name was merely in the condition of an impure solution, since he has drawn attention to the fact that there is present in urine a substance which is undoubtedly derived from bile-pigment. The same fact can be demonstrated in a very simple manner; for if we make a solution of human bile, and having placed it before the slit of the spectroscope, add a few drops of hydrochloric or nitric acid, a black band appears covering F. By now adding caustic potash or caustic soda in sufficient quantity, we can again cause the disappearance of the band. Human urine, which by previous examination has shown a well-marked band, is altered as regards the latter in a precisely similar manner. But I can go farther than Jaffé, as I found that the bile of some animals yields *without any treatment whatever*, a band at F, which undergoes the same transformation with reagents as that of the urinary pigment, which for the sake of avoiding confusion we may call urobilin; the bile of the mouse is above all others the best for demonstrating this fact. A beginner generally fails to notice the absorption-band of urine, as the shading at the violet end of the spectrum approaches closely upon it, but after the examination of several specimens it will be seen without difficulty.

Gmelin's Reaction.—In enabling us to judge whether the colour-reaction given by nitric acid with urine supposed to contain bile-pigments is really due to the latter, the spectroscope is of great use, as a shading appears on each side D if bile-pigment be present. At the completion of the oxidation-process when the colour has changed to a yellowish-brown, we only see a band at F, which is that of the pigment called urobilin; in fact it was by observing the spectrum of Gmelin's reaction that Jaffé was led to attempt the isolation of that substance.

A Pigment in Pathological Urines.—In addition to urobilin, the spectrum of which is always seen to best advantage in febrile urine, there is another pigment, the absorption band of which appears on the addition of strong nitric acid to some specimens of morbid urine; this band occurs to the redward side of that at F, and I am inclined to think that the pigment giving this spectrum is identical with a pigment described by Stokvis* which was found as the end-product when bile was treated with nitric acid; at all events its spectrum is similar to, and was produced in the same manner as, the substance which he describes. I have only found this substance in urine from cases where there has been actual disease, with the exception of pregnancy; but it is not always present in the urine of pregnant women.

Lütein.—Piccoli and Lieben first isolated a yellow substance from the ovaries of cows, the spectrum of which was afterwards studied by Thudichum† who showed that a substance giving a similar spectrum and behaving in a similar manner upon the addition of certain reagents, can be found in butter, cheese, blood-serum, yelks of eggs and the yellow fæces of infants. I find that serous fluids, *e.g.* peritoneal fluid, pleuritic fluid, &c., (*vide antea*) give the same spectrum. Thudichum also demonstrated its presence in ovarian fluids, but as before remarked, it cannot be relied upon as a means of diagnosis. There are other pathological absorption spectra which are worthy of mention, and of great importance to the medical spectroscopist, but I must defer their consideration for the present.‡

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* N. Rep. Pharm., xxi., 123.

† Luteïn. Centralb. f. d. Med. Wiss., 1869.

‡ All the spectra mentioned here will be found figured in my book, "The Spectroscope in Medicine," published by Churchill.

HEREDITARY DEFORMITY.

BY HENRY HANDFORD, M.B., EDIN.

THE following somewhat interesting case came under my notice a short time ago.

Mrs. M. is a small rickety woman, aged about 35. She states that she never menstruated till she was 24 years old. Her feet are normal and well shaped; as also are her husband's. Her father had a club-foot. Of her three children—two, the eldest a girl, and the youngest a boy—are club-footed (talipes varus). Her sister has both feet clubbed, and her sister's three children are all club-footed. Thus six out of eight descendants of the grandfather inherited his deformity.

As further example of hereditary talipes varus, I may mention that Broadhurst* says—"I have known five boys in one family, who have suffered with congenital talipes varus, their father, uncle, and paternal grandfather, having likewise suffered from similar forms of distortion." Also, "I have seen a family of four children, two boys and two girls; all of whom were club-footed at birth; their mother also was club-footed."

Dr. Little† states—"I have traced it (talipes varus) on the paternal side, even through four generations, viz.:—the male infant, the father, the grandfather, and the great-grandfather."

Mr. Adams‡ gives the following remarkable examples. "T.H., a labourer, aged 46, was born with talipes varus of both feet, and is said to have been pretty well *cured* by mechanical means. He now walks very well, and his wife says his feet are straight, or nearly so, but his legs are rather small. This man has a brother, who was born quite free from any deformity, but has a club-footed child. . . . . H. has had thirteen children by one wife, a strong healthy woman—five children have been club-footed, three boys and two girls; and in four, both feet have been affected. The eldest of the five club-footed children, a girl now 19 years of age, has also lately had a club-footed child—her first child; and this is a case of talipes varus of one foot."

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* Broadhurst on the Deformities of the Human Body. p. 5.

† Little on Deformities. p. 252.

‡ Adams on Club Foot. p. 200.

Mr. Bryant[*] also gives two cases. "A female child had left equino-varus; she was one of eight children, the other seven being well made. The parents had no such deformity; but the mother's father had double talipes, and she had two brothers and one sister so deformed."

And, further, in illustration of the fact, that deformities, as a rule, are more prone to attack the male branches of a family than the female, he[†] says—"In a case under my care of talipes varus, the child's father, grandfather, and great-grandfather, on the father's side, had congenital talipes; none of the female branches of the respective families being deformed."

As examples of the hereditary nature of deformities in general, in addition to the numerous cases of hereditary supernumerary fingers and toes that might be quoted, the following cases given by Mr. Bryant,[‡] seem specially interesting.

"A man had scrotal hypospadias, and was one of nine. Both his parents were well formed, and no history of deformity could be traced backwards. One of his sisters had hare lip, and two of his brothers were deformed as he was. Two other brothers and three sisters were natural; but each of these brothers had a son a hypospadiac." And, "In a family of twelve children, two out of four boys had hare-lip and fissured palate; and one out of eight girls had hypertrophy of the right lower extremity with atrophy of the right great toe. The father had a supernumerary little finger on one hand." Again "a boy had a double thumb on one hand and a web between the second and third toes of both feet. His father had webbed toes."

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[*] Bryant. Practice of Surgery, 2nd Edition, Vol. ii., p. 301.
[†] Op. cit., Vol. ii., p. 304.
[‡] Op. cit., Vol. ii., p. 301 and 302.

To return to the case of Mrs. M., that I have related above: it is a point of some interest that the deformity missed a generation in the person of Mrs. M. herself; only to be reproduced in her children, thus plainly showing that the hereditary vice was simply latent, not extinct.

This was also to be observed in one of the cases of club foot recorded by Mr. Bryant, and quoted above. The fact that in both instances the intermediate person was a female lends additional support to the view that deformities are more frequent in males than in females. But in the above cases it is not stated whether the members of the different families that were not actually deformed were in *full mental and bodily vigour.* In the case of Mrs. M. this was certainly not so. I look upon the rickety condition of Mrs. M., and the fact of her not having menstruated till the very unusual age of 24—both grave departures from the normal standard of health—as being the special manifestation in her of the diseased tendency—of the tendency to depart from the normal standard, which in her father and her children made its appearance as club foot.

This view is supported to some extent, I think, by the cases related by Mr. Bryant, of the occurrence of hare lip and hypospadias in the same family ; and also of hare lip and fissured palate with supernumerary fingers, thus showing a sort of convertibility of deformities.

Of course I do not suppose that there is any special connection between club foot (Varus) and rickets ; I merely look upon them as being both due to some imperfect development or defective nutrition of the nervous centres, producing in the one case paralysis of muscles, in the other delayed ossification, &c.

In as much as in the members of Mrs. M's family sometimes the right foot was affected, and sometimes the left, and in one instance both feet, we cannot place them in the same category with those instances of supernumerary fingers or toes, which are so often hereditary. The latter are peculiarities which are reproduced in the offspring, just as are the features of the face. But in club foot we must, I think, consider that the "something" which is transmitted is some defect in the central nervous system producing paralysis of certain muscles, resulting in an abnormal position of the foot, and often, I think, as well a general impaired vitality, which in this special instance showed itself as rickets.

And lastly, in support of this view I find that Dr. Little[*] when speaking of the "influence of distortion upon character," states "that the character of the individual and the deformity, instead of standing in the relation of cause and effect, *result both of them from a peculiar condition of the system of the individual, and in particular of the nervous system.*"

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[*] Op. cit., p. 19.

REPORTS OF CASES.

QUEEN'S HOSPITAL.

Psoriasis Vulgaris.—*Treated by Ointment of Chrysophanic Acid, (under the care of Dr. Sawyer; reported by John Wood, M.B., House Physician.)* Case I. Annie N., æt. 16, admitted March 12th, 1879. Has had psoriasis for thirteen years; the disease has been getting much worse for last three or four years. She is well developed and well nourished. Both lower extremities are covered with patches of chronic psoriasis, the only parts escaping being the flexures of the joints and the soles of the feet. Both surfaces of both fore-arms, and nearly the whole of the arms are occupied by the eruption; the palms are unaffected. Over the back there are round patches of the skin disease, varying in size from a pea to a shilling, and blended together to form large irregular patches; one such continuous patch envelopes the neck and invades the scalp and ears. Smaller patches are found on the forehead, checks, and front of chest, and the lower part of the abdomen is covered with the eruption. General health good; urine normal.

Treatment.—A warm alkaline bath (sodæ carb., ℥vi, aq. cong. xxx) at bed-time for six nights; liq. arsenicalis, m. x, aquam, ad ℥i, t. d. s. ex aquâ capiat. 21st, omit baths. Many of the scales have come off, but skin still very scaly. To apply ung. acid. chrysophan. to the affected skin night and morning. April 24th, skin of trunk and extremities quite clear; some scales still on face and scalp. To apply ung. zinci oleatis to affected skin. May 4th, skin everywhere quite free from scales, fine, soft, supple, and smooth. 14th, discharged. Skin appears perfectly healthy and is of natural colour.

Case II.—Jasper C., æt. 40, married, collier, Broseley, admitted, Jan. 1st, 1879. Patient's skin almost covered with a squamous eruption, consisting of extensive irregular patches of white silvery scales situated upon a red and inflamed base; the palms and the soles were the only parts quite unaffected. The disease had lasted for seven years, but had been getting worse during last three months. General health good; secretions normal. *Treatment.*—Arsenic mixture (seven minims) thrice daily; alkaline baths. Jan. 6th, omit baths; ointment of chrysophanic acid to be rubbed over the surface of the body night and morning. Two days after using the ointment patient had a sharp attack of catarrhal ophthalmia, affecting both eyes; this complication persisted so long as the ointment was used and subsided on its disuse. Feb. 8th, discharged. Skin perfectly smooth and presenting scarcely any trace of original eruption.

Remarks.—These cases illustrate the good effects of chrysophanic acid as a local remedy in psoriasis vulgaris. The drug has two disadvantages; it produces a brown coloration of the skin which persists for some days after its disuse, and it often gives rise to troublesome conjunctival irritation, which subsides when the use of the remedy is omitted. Both these patients took arsenic in full doses; the man, who took seven minims of Fowler's solution thrice daily, during the whole of the time he was in the hospital, did not present any signs of the physiological effects of arsenic; neither did the girl, who took ten minims, excepting a little vomiting, for which the mixture was once omitted for four days.

BIRMINGHAM AND MIDLAND COUNTIES HOSPITAL FOR WOMEN.

Myoma of Uterus—Death from Pyœmia (*under the care of Dr. Savage; reported by Dr. A. R. Barker*).—J. F., exact age doubtful, between 55—60. Married twice. Never been pregnant. Came as out-patient, to the Women's Hospital, April 17th, 1879.

Patient there stated that menstruation had ceased five years ago, but that the last two years there had been a constant vaginal discharge, sometimes sanguineous, sometimes watery, in character, but never offensive, and that she also suffered much abdominal pain.

On vaginal examination, a hard tumour, which seemed to be uterine, was found low down, and firmly wedged in the pelvis, pressing on the rectum. The cervix uteri was fixed behind the pubes. Sound could not be passed.

Patient was ordered bromide of potassium and other sedatives, and kept under notice.

June 10.—Consultation was held on patient's case, with Dr. Savage. Since 15th May, she had complained of increased pain in the abdomen. I succeeded in passing sound 2½ inches in posterior direction.

It was decided to take patient into the Women's Hospital for operation as soon as possible.

June 16.—Patient visited at home, about 10 a.m. Found confined to bed, with a temperature 103°, and pulse 108, and complaining of much difficulty in moving left arm and right leg. Since 12th June, had been troubled with frequent vomiting, which had come on after an unusually long walk. Had noticed numbness in left hand. Was unable to stand. Ordered quinine brandy and milk. 5.30 p.m., Dr. Savage kindly consented to see patient with me. Temp. found to be 104°. Slight voluntary movements now only possible, in both lower extremities, and caused much pain. No loss of power over sphincters. Anæsthesia in all extremities. Slight delirium. Hyperæmic patches noticed—one about the size of a five shilling piece on the dorsum of right hand; another, smaller, over middle third of anterior surface of left tibia.

June 18.—11.30 a.m. Dr. Heslop kindly saw patient with me. Temp. then 103°. Pulse very rapid and weak. Tongue dry, red, pointed. Sordes on the teeth. Delirium more marked, Extreme pain when induced to move lower limbs, referred chiefly to right knee; pressure on this knee caused much pain. No tympanitis or abdominal tenderness. Retention of urine. Patches of hyperæmia remained unchanged. On vaginal examination, tumour seemed softened, and more bulging. A thick flocculent reddish brown discharge was escaping from the vagina.

Operation recommended as slight but only chance of recovery.

7 p.m. Gastrotomy performed by Dr. Savage. Patient in extremis. Uterus was found to be too firmly fixed in pelvis to admit of removal. Fundus felt softened. Wound was closed.

June 19.—Patient died at 2 a.m.

June 20.—*Post-mortem.* Uterus removed was about size of a cricket ball, but softened; cavity filled with thick dirty purulent looking fluid. Os seemed to have been partially closed by a plug of coagulated discharge. No evidence of recent peritonitis. Pus was found in both knee joints, but no purulent deposit in lungs.

Remarks.—The case is interesting as illustrative of an unusual mode of termination of uterine myoma.

Emmet,* in writing of these tumours, mentions "that as the effect of direct injury, or in connection with the puerpural state, the mass may, after sloughing, undergo purulent disintegration; and this process is almost always complicated by symptoms of blood-poisoning."

In the present case there was no history of injury, unless the overwalking may be considered to have acted as such.

MEDICAL NEWS.

REPORTS OF SOCIETIES.

Birmingham and Midland Counties Branch of the British Medical Association.

Ordinary Meeting.

The first meeting of the session 1879-80, was held at the Queen's College, on the 9th October. Present: Dr. James Johnston, President, in the chair, and fifty-eight members and visitors.

New Members.—Dr. Fitch, of Chaddesley, was elected a member of the Branch.

Communications.—1. Mr. Tait showed two gall stones; one in a state of detritus, from a case in which he had performed cholecystotomy.

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* "Principles and Practice of Gynæcology," p. 521.

2. Mr. Tait showed an ovarian tumour, in which the adhesions were so firm that in removing the tumour he made rents in the edge of the liver and gall-bladder; the hæmorrhage from these was somewhat profuse, but it was ultimately controlled by the application of solid perchloride of iron.

3. Another tumour shown by Mr. Tait was a myoma, from the impaction of which in the pelvis a large effusion of ascitic fluid had been produced. He expressed a fear that some damage had been done to a ureter at the time of the operation, and that the patient was not doing well.

4. Mr. Hugh Thomas showed a specimen of uterine hydatids. The patient, aged 21, had miscarried twice previously, and when again advanced to the fourth month of pregnancy, had a sanguineous discharge, which lasted upwards of three weeks. She then became jaundiced, and miscarried with a quantity of hydatids which required much care in completely removing. She subsequently did well.

5. Dr. James Thompson showed a vaginal speculum of the ordinary Fergusson shape, with a handle attached at a right angle near the outer opening; this he found to allow facility in moving, and to be more convenient than the one in use.

6. Mr. Furneaux Jordan read a paper on a method of performing lithotomy.

7. Dr. Sawyer read a paper entitled Therapeutic Notes, in which he drew attention to the value of arsenious acid in treatment of chorea, and of chloride of calcium in phthisis; and pointed to the important part played by diathetic states in the causation of eczema, and the use of ointments of the oleates of zinc and lead, as local applications to the diseased skin.

Second Meeting, November 13th, 1879.

Present: The President, Dr. James Johnston in the chair, and 40 members. The minutes of previous meeting were confirmed and signed. The following members of the Association were elected members of the Branch:—S. B. Fairley, Lichfield Road; B. C. Powell, M.B., Stratford-on-Avon; R. M. Simon, M.B., the General Hospital. Mr. H. R. Ker, and Dr. J. H. Joy, were nominated to fill the vacancy in the list of county members of council, caused by Dr. Bodington's election as chairman of the pathological and clinical section,

Mr. Tait showed a specimen of hydatids of the peritoneum taken from a patient he had operated upon.

Dr. Saundby made some remarks on the *post-mortem* appearance of the case.

Mr. Gamgee presented a woman æt. 61, from the left side of whose neck he had removed a large lipoma, last September. One apex of the lung, the brachial plexus, the subclavian and carotid arteries were exposed during the operation. Under infrequent and absorbent dressings, perfect rest and equable pressure, recovery had been unchecked by a single untoward symptom. At the end of a week the patient left her bed with a normal temperature. The solid cicatrix measures 7½ inches in length.

Mr. Bartleet read a paper entitled "Notes of a case of femoral aneurism, in which the common femoral was ligatured, subsequently the external iliac for secondary hæmorrhage." The publication of this will appear elsewhere. The President, Mr. Yates, and Mr. Ker, made some observations, and Mr. Bartleet replied.

Dr. J. W. Hunt read a paper on the causes of sudden death. He said that sudden death may commence either at the heart from asthenia, that is, a paralysed state of the heart walls, or from anæmia, that is a want of blood for the heart to propel. Under asthenia come the different forms of degeneration of the cardiac walls, dilatation, valvular disease, and others; while under anæmia come cases of death from loss of blood in its various forms. Sudden death may commence at the lungs: apnæa, when the air is prevented entering the air cells, as in certain cases of hæmoptysis, entrance of foreign bodies into the trachea, and spasm of the glottis; or on the other hand when the supply of blood to the lungs is cut off by thrombosis or embolism of the pulmonary artery. Diseases of the brain which cause sudden death do so by producing one of the preceding conditions: that is, by interference either with the circulation or respiration. Hæmorrhage is almost the only cause of really sudden death coming under this head, and even that is rare. A discussion followed in which the President, Dr. Dewes, Dr. Milner Moore, and Mr. Yates took part. Dr. Hunt replied. The meeting then adjourned.

Third Meeting, December 11th, 1879.

Present: The President, Dr. James Johnston, in the chair, and 34 members. The minutes of the previous meeting were read, confirmed, and signed. The following members of the association were elected members of the branch: S. B. Walford, the Guest Hospital, Dudley; John Whitehouse, the Queen's Hospital. Dr. Joy, of Tamworth, having withdrawn his name from the election to fill the vacancy in the list of county members of the council, Mr. H. R. Ker, of Cradley, was declared elected.

Mr. Lawson Tait exhibited two cysts, which he had removed in a state of gangrene due to twisting of the pedicle from rotation of the tumour. Both patients recovered, though one of them was in the fourth month of pregnancy.

Mr. W. C. Garman showed a number of biliary calculi passed per anum by a pony; the largest measured nine inches in circumference.

Mr. T. F. Chavasse showed, for Mr. Martin, of Alcester, a specimen of epithelioma of the penis, which had been amputated, and made some remarks thereon.

Mr. John Greene showed a fine steel pin, called a "pivot brooch," and mentioned its usefulness in passing through occluded hypodermic needles.

Mr. Solomon brought forward the resolution passed by the Committee of Council of the Association, in reference to the attendance of Branch Secretaries at the meetings of the Committee. Dr. Malins said that the Secretaries were already in receipt of a communication from the General Secretary on the subject, which would be brought before the Council Meeting of the Branch that day.

Mr. J. F. West read a paper on Sayre's treatment of spinal affections, in which he recalled Dr. Sayre's visit to Birmingham in 1877, and the valuable plan of treatment he then introduced for angular and lateral curvatures of the spine, by means of suspension and the application of the plaster of Paris jacket. Mr. West insisted on the importance of early diagnosis and treatment of the disease, giving illustrative cases and enlarging the principles on which Sayre's plan is founded. He discussed the various methods of treatment which have been subsequently introduced, *e.g.*, that of Mr. Walker, of Peterborough, for the application of the plaster jacket without suspension: the novel method of applying the jacket by Dr. Miller, of Dundee, and lastly, the poro-plastic jacket as recommended by Mr. Fisher. From his own experience of upwards of 100 cases, Mr. West preferred Sayre's plan, especially in cases of Pott's curvature, though he believed that the poro-plastic jacket would be found useful in cases of lateral curvature.

A discussion followed, in which Mr. Garman, Mr. T. W. Williams, Mr. Freer, Mr. F. E. Manby and Mr. Yates took part.

The meeting then adjourned.

PATHOLOGICAL AND CLINICAL SECTION.

A meeting of this section was held on October 31st, at Queen's College, Birmingham: Dr. Bodington, Kingswinford, in the chair.

Mr. Lawson Tait read a paper on a case of menstrual epilepsy, dependent on exanthematic cirrhosis of the ovaries, and cured by removal of both ovaries. He drew attention to a form of chronic interstitial inflammation of the ovaries, which, according to his observation, was apt to follow certain of the exanthemata, notably small-pox and scarlet fever, to which he gave the name of exanthematic cirrhosis.

Mr. T. F. Chavasse showed a specimen of scirrhus of the male breast.

Mr. W. Thomas read a paper on the treatment of morbus coxæ by Thomas's splints. It was illustrated by two living cases, which were shown to those present.

Dr. Foster showed a specimen of incompetence of the pulmonic valves.

Ordinary Meeting, November 28th.

Dr. Bodington in the chair.

Dr. Handford showed a specimen of rupture of the heart, the result of contusion without penetrating wound of the chest wall; the right auricle was the seat of the rupture.

Dr. Lyle showed an aneurism of the aorta, which had given rise to no symptoms during life, but caused sudden death by hæmorrhage from rupture of the sac.

Dr. Savage exhibited a myoma which he had removed by abdominal section ; also a tumour from another case which could not be removed during life.

Dr. Foster gave an account of a case of multiple sarcoma, illustrated by microscopical sections, exhibited by Mr. Howard Lowe.

Mr. Lowe showed, for Dr. Malet, an aneurism of the aorta, which had ruptured into the œsophagus and trachea.

Dr. Carter read a memorandum on the pathology of sweating.

Dr. Rickards showed, for Dr. Shapley, of Leamington, a specimen of encephalocele.

MIDLAND MEDICAL SOCIETY.

The annual meeting was held 8th October. The following officers were elected : Mr. W. Thomas (president), Mr. Harmar (treasurer), and Messrs. Garner and Eales (secretaries) re-elected. Members of Council : Mr. H. M. Morgan, Drs. Savage, Bassett, Malins, and Carter. The usual votes of thanks were passed, and the annual donation (2 guineas) voted to the Medical Benevolent Society. The report recorded a total of 285 members.

The "Inaugural" Meeting was held at the Grand Hotel, on the 4th November. The meeting was most successful, and the attendance of members and friends very numerous—over 260. Sir W. Jenner delivered a most valuable and interesting address, abounding in points of practical interest, "On the Treatment of Typhoid Fever." The vote of thanks was ably proposed by Dr. Russell, and seconded by Dr. Sawyer. Eighty-four remained to the supper, which, as usual, followed the address. Sir W. Jenner's health was proposed by Mr. Gamgee.

Three ordinary meetings have been held, at which the following papers were read and specimens exhibited :—

22nd October.—Mr. W. Thomas showed a lower limb which he had amputated after a previous excision of the knee joint. Also a specimen of fractured tibia which had united during life, but which separated at the line of fracture on *post-mortem* maceration. Mr. Eales showed a patient from whose eye he had twice removed a rapidly growing vascular tumour. Dr. Savage read a paper on "The Treatment of Uterine Myoma by Abdominal Section."

He detailed six cases, five of which recovered. Mr. Gamgee gave a practical demonstration of the construction of immovable apparatus.

19th November.—Mr. Rhodes showed a little girl æt. five, from whom about two inches of the eighth rib had been excised by Mr. G. H. Evans, for chronic empyema. The wound was soundly healed, and the child's condition very much improved. Mr. Rhodes also showed a new form of mouth gag. Mr. Bradford showed a specimen of uterine hydatids. Dr. Malins showed normal ovaries, which he had successfully removed by abdominal section. Mr. Allen (Dudley), showed a man with congenital bony tumours growing from the outer side of the phalanges on both hands. Dr. Malins read a paper, "Two cases of fibroid tumour simulating inversion of the uterus." In one the tumour occupied the whole pelvis, and the difficulty of diagnosis was extreme. The patient was almost sinking when admitted to the General Hospital; to give her the only chance, Dr. Malins removed the tumour, but she did not long survive. In the other case the tumour came down after a natural labour; it was removed by whipcord ligature and excision, and the patient made a rapid recovery. Mr. H. L. Browne (West Bromwich) read a paper "Two cases of pelvic hematocele." He considered the cause in both cases was tubal pregnancy.

3rd December.—Dr. Saundby read a "case of Amyloid disease," illustrated by microscopic sections. Mr. F. Jordan showed the calculi which he had removed in three cases of lithotomy in young boys. Mr. West showed a plaster cast of an excellent stump taken from a case where he had amputated the thigh by a long anterior and short posterior oval skin flap. Mr. W. Thomas showed the leg of a boy which he had amputated above the knee for acute periostitis of the tibia. Mr. West read a paper on "The surgical cases in which Lister's plan of treating wounds is preferable to any other method of dressing." He considered Lister's method most preferable in osteotomy, resection of joints and bursæ, ovariotomy, herniotomy, empyema, and large abscesses generally The paper was a vigorous and able reply to the attack on Listerism by Mr. Savory, at the Cork meeting of the British Medical Association. The President (Mr. W. Thomas,) Mr. Furneaux Jordan, and Dr. Malins, who took part in the discussion, all bore testimony to the value of Lister's treatment in the various classes of cases in which they had used it. Dr. James Johnston and Mr. Harmar, have jointly offered a prize of ten guineas to be competed for by members of the Midland Medical Society for the best essay on—"Croup and Diphtheria: are they allied?" The competing essays must be sent to one of the examiners—Dr. Wade or Mr. Gamgee, on or before 1st October, 1880.

Coffee is now provided at the conclusion of the meetings, and appears to be appreciated by the members attending.

THERAPEUTICS.

THE TREATMENT OF HOOPING COUGH.—Dr. John Merritt writes very strongly in favour of cresolene vapour, in the treatment of hooping cough. Cresolene or cresylic acid ($CH_3C_6H_5O$) is an oily liquid, corrosive to the skin. The vapour is not injurious to healthy persons. It has a beneficial effect in allaying the irritation and desire to cough in bronchitis. New York Medical Record. [An interesting fact in relation to the treatment of hooping was noticed in the family of a medical friend, whose children, while suffering from this affection, obtained perfect relief on one night, during which the gas in their bedroom had been accidentally allowed to escape; unfortunately our friend did not adopt the hint and repeat the experiment.—Rep.]

TREATMENT OF THE PAINS OF LOCOMOTOR ATAXY. At the Bellevue Hospital, New York, bisulphide of carbon, applied to the spine, gave complete relief from all pain after a variety of remedies, including the actual cautery, gelsemium and hypodermic injections of morphia had failed.—*Ibid.*

MENTHOL AS AN ANTINEURALGIC.—Mr. Macdonald draws attention to the value of menthol, a volatile solid obtained from Chinese oil of peppermint, as a remedy in the various forms of neuralgia. He uses the following solution: Menthol gr. i; Spt. vini rect. m. j; olei caryoph m. x: mix. To be shaken and painted over the affected tract. The pain is relieved in from two to four minutes. In toothache, a single crystal placed on cotton wool and inserted into the previously cleared out cavity, caused the pain to disappear instantly.—London Medical Record, Dec. 1879.

THE TREATMENT OF EXOPHTHALMIC GOITRE.—Dr. A. D. Rockwell relates four cases of exophthalmic goitre, cured or greatly benefited by the use of the constant current, 15 to 30 cells applied to the growth and over the sympathetic. He also refers to two symptoms which he regards as rare, viz.: 1st, dilatation of the pupils; 2nd, pulsation and swelling in the region of the solar plexus.—New York Medical Record, vol. 16, p. 317.

TREATMENT OF CARDIAC DYSPNŒA.—The medicine which has proved most valuable in the experience of Prof. G. Sée, in cases of cardiac dyspnœa, is iodide of potassium. This is especially useful when the dyspnœa is due to a lesion of the heart tissue itself (dilatation or degeneration of the muscle); but it is also of value in valvular lesions. The iodide acts by augmenting, or rather liquefying the bronchial secretions, by which the tubes are rendered more permebale to the air. Iodism may be prevented by associating opium with the salt. Digitalis may be added to the mixture with great advantage, the one relieving the heart, the other the lung. —Le Concours Médicale

THE TREATMENT OF NEURALGIA.—Dr. Weir Mitchell has succeeded in curing a case of obstinate trigeminal neuralgia, which had persisted after excision of half an inch of the nerve, by administering Duquesnel's preparation of aconitia, in doses of 1-140th increased to 1-96th of a grain, given three, four, and at last seven times a day. No physiological effects were noted except slight coldness with some tingling sensations.—London Medical Record.

THE ACTION OF PILOCARPINE.—M. Strauss has studied the effects of injections of hydrochlorate of pilocarpine in man. The seat of the puncture becomes at first red, then forms a little vesicle. Around the puncture, in two or three minutes, pearls of sweat shew themselves in a zone, larger or smaller in proportion to the dose used. These phenomena had been already observed in animals by M. Luchsinger, a veterinary surgeon, at Zurich. M. Strauss has proved the antagonism of atropine and pilocarpine. In the cat, three milligrammes of neutral sulphate of atropine counter-balance the action of two centigrammes of pilocarpine. In a man, M. Strauss has seen six milligrammes of neutral sulphate of atropine paralyse the effect of three centigrammes of pilocarpine. —Le Progrès Médical, No. 29.

HYDROPHOBIA CURED BY CURARE.—Dr. Offenberg publishes a case of, from the details and history, apparently genuine hydrophobia in a young peasant woman, who was bitten by a dog pronounced by a veterinary surgeon to be mad. The curare treatment consisted in the hypodermic injection of $\frac{6}{13}$ gr. about every hour, until severe paralytic phenomena were induced. By this means the convulsions were made to cease, and the patient slowly recovered.—New York Médical Record, August 9th, 1870.

THE USE OF MAGNETS IN ORGANIC AND HYSTERICAL HEMIANÆSTHESIA.—M. Debove reports that organic hemianæsthesia and hemiplegia may be cured by the prolonged application (for one or two days) of a magnet (with a force of 20 to 30 kilogrammes) to the affected side. In hysterical hemianæsthesia the application must be bilateral, to counteract "transference" or the shifting of the hemianæsthesia from one side to the other. He publishes cases in support of these statements. —Le Progrès Médical. No. 50.

ALCOHOLIC PREPARATIONS OF PEPSINE.—M. Vulpian has communicated to the Académie de Médicine the results of some experiments which prove that the addition of alcohol to a solution of acidulated pepsine, or to natural gastric juice, retards digestion. M. Mourrut in a subsequent note affirmed that alcohol also retards the action of diastase and pancreatine, an acid reaction of the fluid annuls the action of pancreatine, and retards that of diastase. The practical conclusions to be drawn from these experiments are: 1, that alcohol retards normal digestion; 2, that pepsine should not be prescribed in wine; 3, that pancreatine taken into the stomach is rendered inert by the acid reaction of the contents.—Le Progrès Médical. No. 33.

AUTOMATIC MEDICAL ELECTRICITY.—Dr. Francis Imlach, in the Practitioner for October, describes some very ingenious and useful devices for the application of electricity to paralytics. For treating hemiplegias, he uses a faradic battery, electrodes, wires, and an electric sandal. The electrodes consist of flat pieces of thin, flexible metal, quite narrow, and varying from three to five inches long. These can be tied on to any part of the back or extremities; the sandal is made of boxwood and metal, fastened to the naked heel and connected by ordinary insulated wires with the battery and the electrodes. In the case, now, of a left hemiplegic, where it is desired automatically to contract the muscles of the back of the thigh and calf of the leg, the sandal is fastened to the *right* foot. One electrode is then fastened to the back of the thigh, and another to the back of the leg, both being connected by wires with the sandal and the battery. When the patient, in stepping forward, puts his right heel down, connections are made, a current passes between the two electrodes, contraction takes place in the thigh and leg muscles of the left extremity, which is thus raised up. As the patient progresses the right heel is raised, the current broken, and the left extremity falls naturally forward. This process is continued every time the right heel presses the floor, the left leg and thigh being contracted. Of course the patient can walk no farther than the long wire connecting him with the battery will allow, and the exercise must thus be taken indoors. By pursuing the practice, however, for fifteen or twenty minutes every day, very rapid progress is made toward recovery of the full power of the muscles.

New Books, &c., Received.

1. On Finger Contraction and Depressed Cicatrices. By W. Adams, F.R.C.S. London: J. and A. Churchill, 1879.—2. Medical Education and Organisation. By Walter Rivington, B.A., M.B., London, F.R.C.S. Barlliere, Tyndal and Cox, London —3. Twelve complete Clinical Charts. By L. J. Hobson, M.B., B.S., London. H.K. Lewis, London.—4. Theory and Practice of Medicine. By F.W. Roberts, M.D. H. K. Lewis, London.—5. The Treatment of Uterine Myoma by Abdominal Section. By Thomas Savage, M.D. Birmingham: Josiah Allen. 6. On the Electrical Excitability of the Skin. By S. Tschiriew, M.D., and A. de Watteville, M.A.—7. The Balance of Pressure within the Skull. By James Cappie, M.D. London: William Clowes and Sons. 8. The Movements of the Eyelids. By W. R. Gowers, M.D., F.R.C.P. —9. By the same Author: A study of the so called Tendon Reflex Phenomena.—10. Pay Hospitals and Paying Wards. By Henry C. Burdett. London: J. and A. Churchill.—11. Guide to Diseases of the Eye. By Edw. Nettleship, F.R.C.S. London: J. and A. Churchill.

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British Medical Journal,
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